

PHILIPS

DVD-870

MODEL

SERVICE MANUAL

Service Service Service

Service Information

General

Introduction of SD3.x L7 & L8 mono board:

Changes from L4 to L7

- SDRAM footprint, at pos. 7404 and 7405, has been removed.
- Additional 2 resistors, at pos. 3424 and 3425, used for the 90ns ROM type.
- Relayout to improve EMC.

Changes from L7 to L8

- Removed mostly jumpers and relayout to improve EMC.

Since the change from L7 to L8 is minimal, only the L8 mono board schematic, layout, and parts list are published.

This service information will supplement the SD3.0 service manual (3122 785 11010) and service information (3122 785 40490).

Remarks

SD3.x L7 & L8 monoboard has been introduced as a running change during production for the following models:.

VFM2001

- EU models:
 - DVD612/0x2;DVD612S/002;DVD622/0x2;DVD712/0x1;DVD722/0x1;DVD752/0X1;DVD762/0x1;DVD870/0x1;DVD870P/0x1;DVD870L/0x1
- Non-EU models:
 - DVD703/032;DVD703/692;DVD703/752;DVD703/783;DVD712/171;DVD712/172;DVD870P/171

STEP2001

- EU models:
 - DVD952/0x1;DVDQ40/0x1;DVDQ50/0x1
- Non-EU models:
 - DVDQ50/171; DVDQ50/69x; DVDQ50/75x; DVDQ50/78x

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PHILIPS

Spare Parts List

Mechanism			
Various			
0001	9305 023 61104	VAL6011/04	
Mono PWB			
Various			
1100	2422 025 16543	CON BM H 4P M 2.00 PH SMD R	2216 5322 126 11578 1nF 10% 50V 0603
1104	2422 025 15963	CON BM H 24P F 0.50 FFC SMD R	2226 4822 126 14305 100nF 10% 16V 0603
1106	2422 025 16158	CON BM H 8P F 1.00 FFC 0.3 R	2227 4822 126 14305 100nF 10% 16V 0603
1205	2422 540 98428	RES CER SM 8M467 CSTCC8.46MHz R	2228 4822 126 14305 100nF 10% 16V 0603
1300	2422 540 98426	RES CER SM 6MHz CSTCC6.00MHz R	2229 4822 126 14305 100nF 10% 16V 0603
1301	4822 267 51454	CONN. 11P FEMALE	2300 4822 126 14305 100nF 10% 16V 0603
1501	2422 025 16702	CON BM H 5P M 2.00 PH SMD R	2301 4822 126 14305 100nF 10% 16V 0603
1506	4822 267 60409	CONN 22P FEMALE	2302 4822 126 14305 100nF 10% 16V 0603
1600	2422 025 16705	CON BM H 12P M 2.00 PH SMD R	2303 4822 124 80349 47µF 20% 6.3V
1602	2422 025 16703	CON H 7P M 2.00 PH SMD R	2304 3198 017 42230 0603 50V 22nF COL
1603	2422 025 16389	CON BM V 22P F 1.00 FFC 0.3 R	2305 3198 017 42230 0603 50V 22nF COL
1604	2422 025 16388	CON BM V 16P F 1.00 FFC 0.3 R	2306 4822 124 23002 10µF 16V
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2100	4822 126 14305	100nF 10% 16V 0603	2307 3198 017 42230 0603 50V 22nF COL
2101	4822 126 14305	100nF 10% 16V 0603	2309 4822 126 14305 100nF 10% 16V 0603
2103	4822 124 80151	47µF 16V	2310 4822 126 14305 100nF 10% 16V 0603
2104	4822 126 13193	4.7nF 10% 63V	2314 4822 126 14305 100nF 10% 16V 0603
2105	4822 122 33761	22pF 5% 50V	2315 4822 126 14305 100nF 10% 16V 0603
2107	4822 126 13956	68pF 5% 63V 0603	2318 5322 122 33861 120pF 10% 50V
2108	4822 126 14315	390pF 5% 50V 0603	2319 4822 126 11689 27pF
2109	2020 552 95697		2320 4822 126 14305 100nF 10% 16V 0603
2110	2222 861 15222	63V 2N2 5%	2321 4822 126 14305 100nF 10% 16V 0603
2111	4822 126 14305	100nF 10% 16V 0603	2401 4822 126 14305 100nF 10% 16V 0603
2112	5322 126 11578	1nF 10% 50V 0603	2402 4822 126 14305 100nF 10% 16V 0603
2113	4822 126 14305	100nF 10% 16V 0603	2403 4822 126 14305 100nF 10% 16V 0603
2114	4822 122 31765	100pF 2% 63V 1206	2404 4822 126 14305 100nF 10% 16V 0603
2115	4822 126 14305	100nF 10% 16V 0603	2405 4822 126 14305 100nF 10% 16V 0603
2116	4822 126 14305	100nF 10% 16V 0603	2406 4822 126 14305 100nF 10% 16V 0603
2117	4822 126 14305	100nF 10% 16V 0603	2407 4822 126 14305 100nF 10% 16V 0603
2118	3198 017 42230	0603 50V 22nF COL	2408 4822 126 14305 100nF 10% 16V 0603
2119	3198 017 42230	0603 50V 22nF COL	2409 4822 126 14305 100nF 10% 16V 0603
2120	4822 126 14305	100nF 10% 16V 0603	2410 4822 126 14305 100nF 10% 16V 0603
2121	4822 126 13879	220nF 20% 16V	2411 4822 126 14305 100nF 10% 16V 0603
2122	3198 017 42230	0603 50V 22nF COL	2412 4822 126 14305 100nF 10% 16V 0603
2123	4822 126 14305	100nF 10% 16V 0603	2413 4822 126 14305 100nF 10% 16V 0603
2124	4822 126 14305	100nF 10% 16V 0603	2418 4822 124 12095 100µF 20% 16V
2125	4822 126 14305	100nF 10% 16V 0603	2419 4822 124 80349 47µF 20% 6.3V
2126	4822 126 14305	100nF 10% 16V 0603	2420 4822 124 80349 47µF 20% 6.3V
2127	4822 126 14305	100nF 10% 16V 0603	2421 2238 586 59812 0603 50V 100NP80M
2128	4822 126 14508	180pF 5% 50V 0603	2422 2238 586 59812 0603 50V 100NP80M
2129	4822 126 14508	180pF 5% 50V 0603	2423 4822 126 14305 100nF 10% 16V 0603
2130	4822 122 33761	22pF 5% 50V	2424 2238 586 59812 0603 50V 100NP80M
2131	4822 126 14494	22nF 10% 25V 0603	2425 2238 586 59812 0603 50V 100NP80M
2136	4822 126 14305	100nF 10% 16V 0603	2426 4822 126 14305 100nF 10% 16V 0603
2137	4822 126 14305	100nF 10% 16V 0603	2427 4822 126 14305 100nF 10% 16V 0603
2138	4822 126 14305	100nF 10% 16V 0603	2500 4822 126 14305 100nF 10% 16V 0603
2139	4822 126 14305	100nF 10% 16V 0603	2503 4822 126 14305 100nF 10% 16V 0603
2140	4822 126 14241	0603 50V 330P COL R	2504 3198 030 74780 EL SM 35V 4U7 PM20 COL R
2141	4822 122 33761	22pF 5% 50V	2507 4822 126 14494 22nF 10% 25V 0603
2142	5322 126 11583	10nF 10% 50V 0603	2509 4822 124 23002 10µF 16V
2143	4822 126 13883	220pF 5% 50V	2510 4822 126 14305 100nF 10% 16V 0603
2144	4822 126 13883	220pF 5% 50V	2511 4822 124 23002 10µF 16V
2145	4822 126 13883	220pF 5% 50V	2512 4822 126 14305 100nF 10% 16V 0603
2203	4822 126 14305	100nF 10% 16V 0603	2513 4822 122 33761 22pF 5% 50V
2204	4822 126 14305	100nF 10% 16V 0603	2514 4822 122 33761 22pF 5% 50V
2205	4822 126 14305	100nF 10% 16V 0603	2515 4822 122 33761 22pF 5% 50V
2206	4822 126 14549	33nF 16V O6O3	2516 4822 122 33761 22pF 5% 50V
2207	5322 126 11578	1nF 10% 50V 0603	2517 4822 126 14305 100nF 10% 16V 0603
2208	4822 126 14305	100nF 10% 16V 0603	2518 3198 030 74780 EL SM 35V 4U7 PM20 COL R
2209	4822 126 14305	100nF 10% 16V 0603	2519 4822 126 14305 100nF 10% 16V 0603
2210	5322 126 11578	1nF 10% 50V 0603	2520 4822 126 14305 100nF 10% 16V 0603
2212	4822 126 14305	100nF 10% 16V 0603	2521 4822 126 14305 100nF 10% 16V 0603
2213	4822 126 14305	100nF 10% 16V 0603	2522 4822 126 14305 100nF 10% 16V 0603
2214	3198 017 42230	0603 50V 22nF COL	2523 4822 126 14305 100nF 10% 16V 0603
2215	4822 124 23237	22µF 6.3V	2524 4822 126 14305 100nF 10% 16V 0603
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3158	5322 117 13017	100Ω 1% 0.063W 0603 RC22H	3265	4822 051 30472	4k7 5% 0.062W	3611	4822 051 30103	10k 5% 0.062W
3160	4822 051 30101	100Ω 5% 0.062W	3266	4822 117 13632	100k 1% 0603 0.62W	3612	4822 051 30103	10k 5% 0.062W
3161	4822 117 13613	2Ω 2 5% 0603	3300	4822 117 11152	4Ω 7 5%	3613	4822 051 30103	10k 5% 0.062W
3162	4822 051 30101	100Ω 5% 0.062W	3301	4822 051 30105	1M 5% 0.062W	3614	4822 051 30103	10k 5% 0.062W
3163	4822 051 30273	27k 5% 0.062W	3302	4822 051 30221	220Ω 5% 0.062W	3615	4822 051 30103	10k 5% 0.062W
3164	4822 117 13613	2Ω 2 5% 0603	3304	4822 051 30272	2k7 5% 0.062W	3616	4822 051 30472	4k7 5% 0.062W
3165	5322 117 13063	120Ω 1% 0.063W 0603 RC22H	3305	4822 051 30272	2k7 5% 0.062W	3617	4822 051 30472	4k7 5% 0.062W
3166	4822 051 30393	39k 5% 0.062W	3309	4822 051 30103	10k 5% 0.062W	3618	4822 051 30223	22k 5% 0.062W
3167	4822 051 30101	100Ω 5% 0.062W	3310	4822 051 30223	22k 5% 0.062W	3619	4822 051 30223	22k 5% 0.062W
3168	5322 117 13047	330Ω 1% 0.063W 0603 RC22H	3311	4822 051 30223	22k 5% 0.062W	3620	4822 051 30101	100Ω 5% 0.062W
3169	4822 051 30101	100Ω 5% 0.062W	3312	4822 051 30472	4k7 5% 0.062W	3621	4822 051 30101	100Ω 5% 0.062W
3170	4822 051 30101	100Ω 5% 0.062W	3313	4822 051 30472	4k7 5% 0.062W	3622	4822 051 30101	100Ω 5% 0.062W
3171	4822 051 30101	100Ω 5% 0.062W	3316	4822 051 20108	1Ω 5% 0.1W	3623	4822 051 30101	100Ω 5% 0.062W
3172	4822 117 13632	100k 1% 0603 0.62W	3317	4822 051 20108	1Ω 5% 0.1W	3624	4822 051 30101	100Ω 5% 0.062W
3173	4822 117 13632	100k 1% 0603 0.62W	3318	4822 051 30472	4k7 5% 0.062W	3625	4822 051 30101	100Ω 5% 0.062W
3174	4822 117 11152	4Ω 7 5%	3319	4822 051 30479	47Ω 5% 0.062W	3626	4822 051 30102	1k 5% 0.062W
3175	4822 117 13613	2Ω 2 5% 0603	3320	4822 051 30472	4k7 5% 0.062W	3627	4822 051 30471	470Ω 5% 0.062W
3176	4822 051 30153	15k 5% 0.062W	3321	4822 051 30682	6k8 5% 0.062W	3628	4822 051 30471	470Ω 5% 0.062W
3178	4822 117 11151	1Ω 5%	3322	5322 117 13026	4k7 1% 0.063W 0603 RC22H	3629	4822 051 30472	4k7 5% 0.062W
3179	4822 051 30221	220Ω 5% 0.062W	3323	5322 117 13026	4k7 1% 0.063W 0603 RC22H	3630	4822 051 30221	220Ω 5% 0.062W
3180	4822 117 13632	100k 1% 0603 0.62W	3324	4822 117 13632	100k 1% 0603 0.62W	3631	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3181	4822 051 30561	560Ω 5% 0.062W	3325	4822 051 30682	6k8 5% 0.062W	3632	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3182	5322 117 13018	1k0 1% 0.063W 0603 RC22H	3326	4822 051 30479	47Ω 5% 0.062W	3633	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3183	5322 117 13017	100Ω 1% 0.063W 0603 RC22H	3327	4822 051 30682	6k8 5% 0.062W	3635	4822 051 30682	6k8 5% 0.062W
3184	2322 704 61204		3328	4822 051 30223	22k 5% 0.062W	3636	4822 051 30682	6k8 5% 0.062W
3185	4822 117 11151	1Ω 5%	3329	4822 051 30223	22k 5% 0.062W	3637	4822 051 30332	3k3 5% 0.062W
3187	4822 051 30273	27k 5% 0.062W	3330	4822 051 30223	22k 5% 0.062W	3642	4822 051 30103	10k 5% 0.062W
3189	4822 051 30008	0Ω jumper	3331	4822 051 30332	3k3 5% 0.062W	3647	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3190	4822 051 30008	0Ω jumper	3332	4822 051 30332	3k3 5% 0.062W	3648	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3191	4822 051 30008	0Ω jumper	3333	4822 051 30101	100Ω 5% 0.062W	3651	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3192	4822 051 30008	0Ω jumper	3334	4822 051 30101	100Ω 5% 0.062W	3654	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3193	4822 051 30008	0Ω jumper	3335	4822 051 30101	100Ω 5% 0.062W	3655	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3194	4822 051 30008	0Ω jumper	3336	4822 051 30101	100Ω 5% 0.062W	3656	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3195	4822 051 30008	0Ω jumper	3337	4822 051 30101	100Ω 5% 0.062W	3657	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3197	4822 051 30008	0Ω jumper	3338	4822 051 30101	100Ω 5% 0.062W	3658	4822 051 30102	1k 5% 0.062W
3198	5322 117 13049	470Ω 1% 0.063W 0603 RC22H	3339	4822 051 30008	0Ω jumper	3659	4822 051 30102	1k 5% 0.062W
3199	5322 117 13042	3k9 1% 0.063W 0603 RC22H	3340	4822 051 30008	0Ω jumper	3660	4822 051 30102	1k 5% 0.062W
3200	4822 051 30103	10k 5% 0.062W	3347	4822 117 11152	4Ω 7 5%	3661	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3201	4822 117 11151	1Ω 5%	3348	4822 117 11152	4Ω 7 5%	3662	4822 051 30102	1k 5% 0.062W
3202	4822 117 11151	1Ω 5%	3403	4822 051 30103	10k 5% 0.062W	3663	4822 051 30102	1k 5% 0.062W
3203	4822 051 30105	1M 5% 0.062W	3404	4822 051 30103	10k 5% 0.062W	3664	5322 117 13059	560Ω 1% 0.063W 0603 RC22H
3204	4822 051 30331	330Ω 5% 0.062W	3405	4822 051 30103	10k 5% 0.062W	3665	4822 117 12139	22Ω 5% 0.062W
3205	4822 051 30103	10k 5% 0.062W	3412	4822 051 30008	0Ω jumper	3667	4822 157 11499	BLM11P600SPT
3206	4822 051 30103	10k 5% 0.062W	3414	4822 051 30008	0Ω jumper	3672	4822 051 30479	47Ω 5% 0.062W
3208	4822 051 30272	2k7 5% 0.062W	3416	4822 051 30008	0Ω jumper	3677	4822 051 30008	0Ω jumper
3209	4822 051 30472	4k7 5% 0.062W	3419	4822 051 30103	10k 5% 0.062W	3678	4822 051 30008	0Ω jumper
3210	4822 051 30392	3k9 5% 0.063W 0603	3424	4822 051 30008	0Ω jumper	3679	4822 051 30008	0Ω jumper
3211	4822 051 30472	4k7 5% 0.062W	3500	4822 051 30332	3k3 5% 0.062W	3681	4822 051 30008	0Ω jumper
3212	4822 117 11152	4Ω 7 5%	3501	4822 051 30332	3k3 5% 0.062W	3683	4822 051 30008	0Ω jumper
3213	4822 117 11152	4Ω 7 5%	3502	4822 051 30223	22k 5% 0.062W	3685	4822 051 30008	0Ω jumper
3214	4822 051 30392	3k9 5% 0.063W 0603	3505	4822 051 30103	10k 5% 0.062W	3686	4822 051 30223	22k 5% 0.062W
3215	4822 051 30103	10k 5% 0.062W	3506	4822 051 30472	4k7 5% 0.062W	3687	4822 051 30223	22k 5% 0.062W
3219	4822 051 30103	10k 5% 0.062W	3508	4822 051 30332	3k3 5% 0.062W	3688	4822 051 30472	4k7 5% 0.062W
3220	4822 051 30103	10k 5% 0.062W	3509	4822 051 30103	10k 5% 0.062W	3689	4822 051 30223	22k 5% 0.062W
3221	4822 051 30103	10k 5% 0.062W	3512	4822 051 30103	10k 5% 0.062W	3692	4822 051 30331	330Ω 5% 0.062W
3224	4822 051 30151	150Ω 5% 0.062W	3513	4822 051 30103	10k 5% 0.062W	3693	4822 051 30331	330Ω 5% 0.062W
3225	2322 704 62004		3514	4822 051 30103	10k 5% 0.062W	3694	4822 051 30681	680Ω 5% 0.062W
3226	4822 051 30103	10k 5% 0.062W	3515	4822 051 30103	10k 5% 0.062W	3695	4822 051 30681	680Ω 5% 0.062W
3227	4822 051 30472	4k7 5% 0.062W	3517	4822 051 30332	3k3 5% 0.062W	3705	4822 051 30103	10k 5% 0.062W
3229	4822 051 30123	12k 5% 0.062W	3518	4822 051 30332	3k3 5% 0.062W	3706	4822 051 30103	10k 5% 0.062W
3230	4822 051 30103	10k 5% 0.062W	3519	4822 051 30103	10k 5% 0.062W	3707	4822 051 30472	4k7 5% 0.062W
3231	4822 051 30103	10k 5% 0.062W	3520	4822 051 30332	3k3 5% 0.062W	3708	4822 051 30008	0Ω jumper
3232	4822 117 13613	2Ω 2 5% 0603	3521	4822 117 13613	2Ω 2 5% 0603			
3234	4822 117 12902	8k2 1% 0.063W 0603	3522	4822 117 13613	2Ω 2 5% 0603	5200	4822 157 11717	BLM31P500SPT
3235	4822 117 13632	100k 1% 0603 0.62W	3523	4822 051 30101	100Ω 5% 0.062W	5300	4822 157 11717	BLM31P500SPT
3236	4822 051 30472	4k7 5% 0.062W	3524	4822 051 30101	100Ω 5% 0.062W	5301	4822 157 11717	BLM31P500SPT
3237	4822 051 30103	10k 5% 0.062W	3525	4822 051 30101	100Ω 5% 0.062W	5402	4822 157 11499	BLM11P600SPT
3238	4822 051 30103	10k 5% 0.062W	3530	2322 704 61303	RST SM 0603 RC22H 13k PM1 R	5403	4822 157 11499	BLM11P600SPT
3239	4822 051 30008	0Ω jumper	3531	2322 704 61303	RST SM 0603 RC22H 13k PM1 R	5501	4822 157 70299	2.2μH (NL322522T-2R2J)
3240	4822 051 30103	10k 5% 0.062W	3532	4822 051 30101	100Ω 5% 0.062W	5502	4822 157 70299	2.2μH (NL322522T-2R2J)
3242	4822 051 30008	0Ω jumper	3533	5322 117 13042	3k9 1% 0.063W 0603 RC22H	5503	4822 157 71206	BLM21A601SPT
3243	4822 051 30008	0Ω jumper	3534	5322 117 13042	3k9 1% 0.063W 0603 RC22H	5504	4822 157 71206	BLM21A601SPT
3246	4822 051 30008	0Ω jumper	3537	4822 051 30103	10k 5% 0.062W	5600	4822 157 71206	BLM21A601SPT
3247	4822 051 30008	0Ω jumper	3571	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM	5601	4822 157 71206	BLM21A601SPT
3249	4822 051 30008	0Ω jumper	3572	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM	5602	4822 157 70651	12μH (NL322522T-120J)
3250	4822 051 30008	0Ω jumper	3580	4822 117 13573	NETW 4 X 47Ω 5% MNR14	5603	4822 157 71206	BLM21A601SPT
3251	4822 051 30008	0Ω jumper	3581	4822 117 13573	NETW 4 X 47Ω 5% MNR14	5604	4822 157 70651	12μH (NL322522T-120J)
3252	4822 051 30008	0Ω jumper	3583	4822 051 30008	0Ω jumper	5605	4822 157 70651	12μH (NL322522T-120J)
3253	4822 051 30008	0Ω jumper	3588	4822 051 30332	3k3 5% 0.062W	5606	4822 157 70651	12μH (NL322522T-120J)
3254	4822 051 30008	0Ω jumper	3589	4822 051 30332	3k3 5% 0.062W			
3255	4822 051 30008	0Ω jumper	3590	4822 051 30681	680Ω 5% 0.062W			
3256	4822 051 30008	0Ω jumper	3591	4822 051 30152	1k5 5% 0.062W			
3257	4822 051 30008	0Ω jumper	3592	4822 051 30101	100Ω 5% 0.062W			
3258	4822 051 30008	0Ω jumper	3594	4822 051 30101	100Ω 5% 0.062W			
3259	4822 117 11151	1Ω 5%	3605	4822 051 30008	0Ω jumper			
3260	4822 117 11151	1Ω 5%	3606	4822 117 12925	47k 1% 0.063W 0603			
3261	4822 051 30102	1k 5% 0.062W	3607	4822 117 13632	100k 1% 0603 0.62W			
3262	4822 051 30008	0Ω jumper	3608	4822 117 13632	100k 1% 0603 0.62W			
3263	4822 051 30008	0Ω jumper	3609	4822 117 13632	100k 1% 0603 0.62W			
			3610	4822 051 30103	10k 5% 0.062W			

5607	4822 157 70651	12µH (NL322522T-120J)
5608	4822 157 70651	12µH (NL322522T-120J)
5609	4822 157 11717	BLM31P500SPT
5610	4822 157 11717	BLM31P500SPT
5611	4822 157 11717	BLM31P500SPT
5613	4822 157 11717	BLM31P500SPT
5614	4822 157 11717	BLM31P500SPT



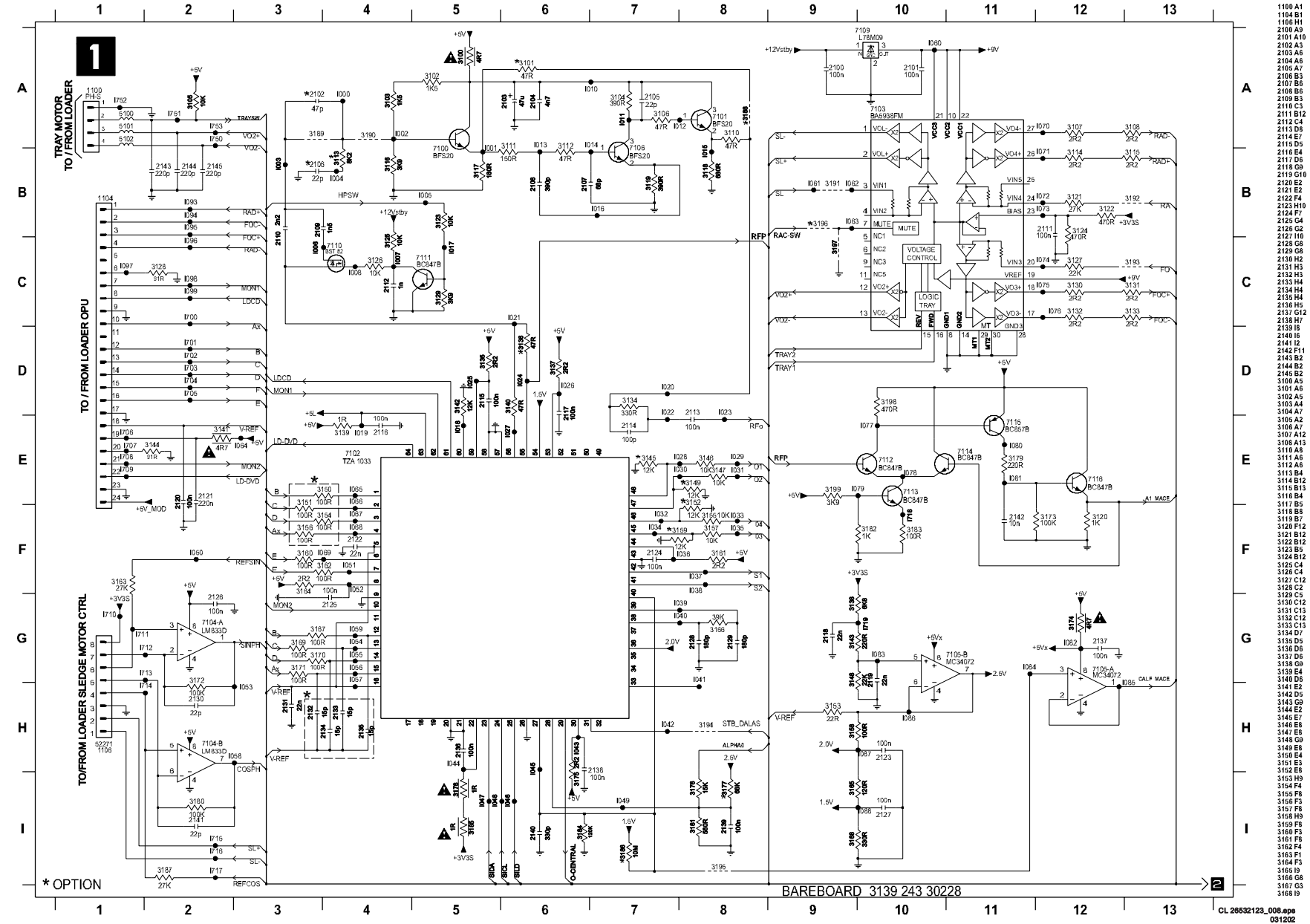
6200	4822 130 11397	BAS316
6301	9322 128 69685	S1D
6302	9322 128 69685	S1D
6303	9322 128 69685	S1D
6600	9322 154 46685	DIO REC SM RB501V-40 (RHM0) R



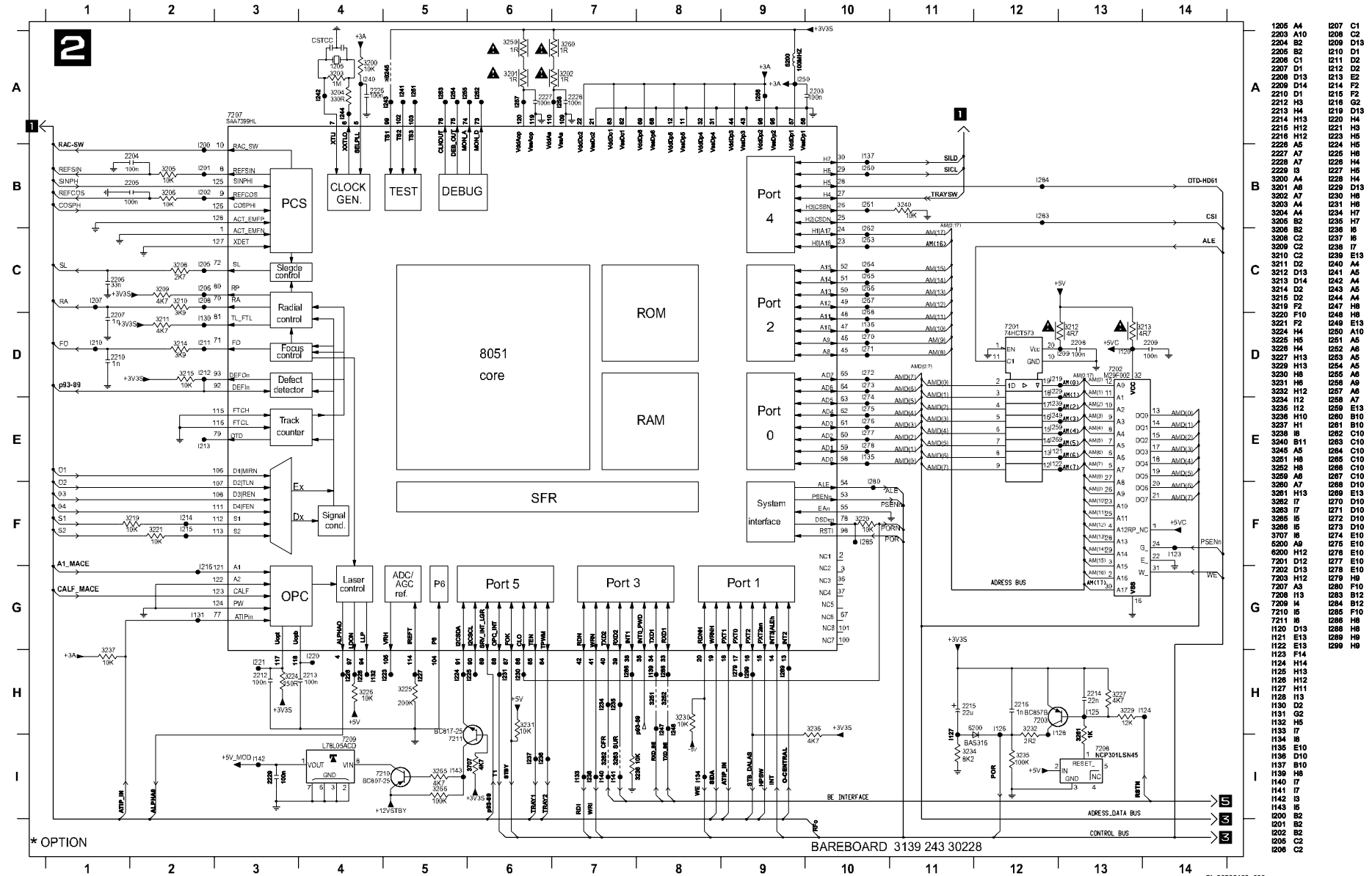
7100	5322 130 42718	BFS20
7101	5322 130 42718	BFS20
7102	9352 637 37518	TZA1033HL
7103	4822 209 17229	BA5938FM
7104	4822 209 30095	LM833D
7105	4822 209 32073	MC34072D
7106	5322 130 42718	BFS20
7109	4822 209 15083	AN78M09
7109	9322 136 29668	L78M09CDT
7110	5322 130 60803	BS772A
7111	4822 130 60511	BC847B
7112	4822 130 60511	BC847B
7113	4822 130 60511	BC847B
7114	4822 130 60511	BC847B
7115	4822 130 60373	BC856B
7116	4822 130 60511	BC847B
7201	9351 869 80118	74HCT573DB
7202	3104 123 85860	AM29F002T/5.1.14
7203	4822 130 60373	BC856B
7207	4822 209 17231	SAA7399HL
7208	9322 139 67685	IC SM MC33464N-45A (MOTA) R
7208	9322 163 27685	IC SM NCP301LSN45 (ONSE) R
7209	4822 209 90927	L78L05ACD
7210	5322 130 60845	BC807-25
7211	4822 130 42804	BC817-25
7304	4822 209 16877	BA6856FP
7304	9322 139 85668	BA6665FM
7310	4822 209 15899	CY7C199-15C
7311	9352 622 13557	SAA7335HL
7312	4822 130 60373	BC856B
7315	4822 130 60511	BC847B
7316	9352 500 20118	IC SM 74LVC08AD (PHSE) R
7317	9352 500 20118	IC SM 74LVC08AD (PHSE) R
7407	9322 166 67668	IC SM MT48LC4M16A2TG- 7E(MRNO)R
7501	4822 130 60511	BC847B
7503	9322 167 96671	IC SM ST15508AVB (ST00) Y
7503	9322 169 81671	ST15508EVB
7504	2722 171 08709	OSC XTL SM 27MHZ 120P FXO-31 R
7505	9322 156 81668	M24C32-WMN6TNKSA
7506	5322 130 63289	BSN20
7507	5322 130 63289	BSN20
7600	5322 209 71568	PC74HCT14T
7601	9322 142 88668	IC SM LF25CDT (ST00) R
7602	9322 142 88668	IC SM LF25CDT (ST00) R
7604	4822 130 60511	BC847B
7605	4822 209 17398	LD1117DT33
7607	4822 130 60511	BC847B
7608	4822 130 60373	BC856B
7609	4822 130 60373	BC856B
7610	4822 130 60511	BC847B
7611	9352 456 80115	74HCT1G125GW
7612	4822 130 60511	BC847B
7613	4822 130 60511	BC847B
7614	4822 130 60511	BC847B
7615	4822 130 60511	BC847B
7617	4822 130 60511	BC847B
7618	4822 130 60511	BC847B
7620	4822 130 60373	BC856B
7621	4822 130 42804	BC817-25
7631	4822 130 60511	BC847B
7632	4822 130 60511	BC847B

Electrical Diagrams and Print-Layouts

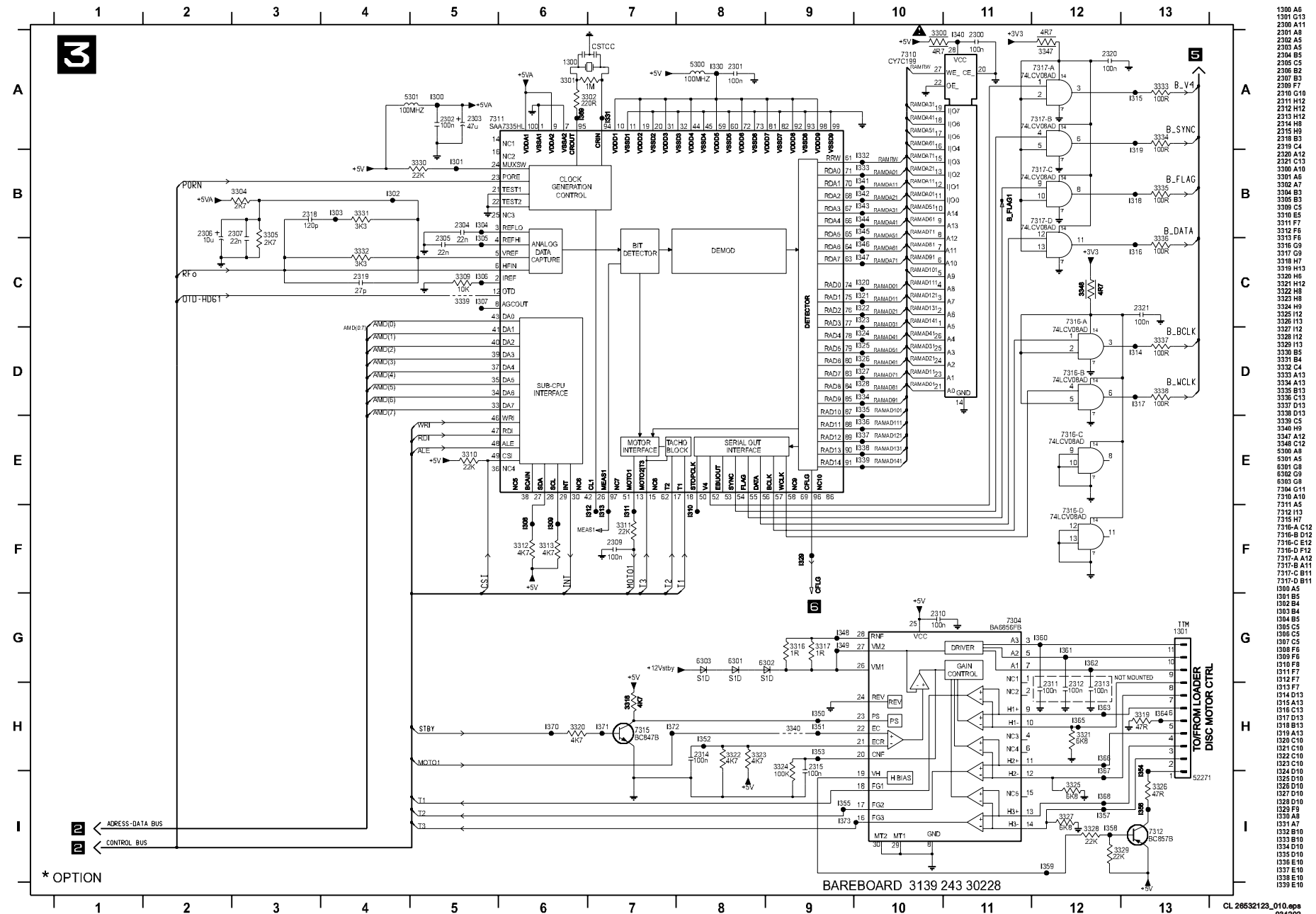
Monoboard



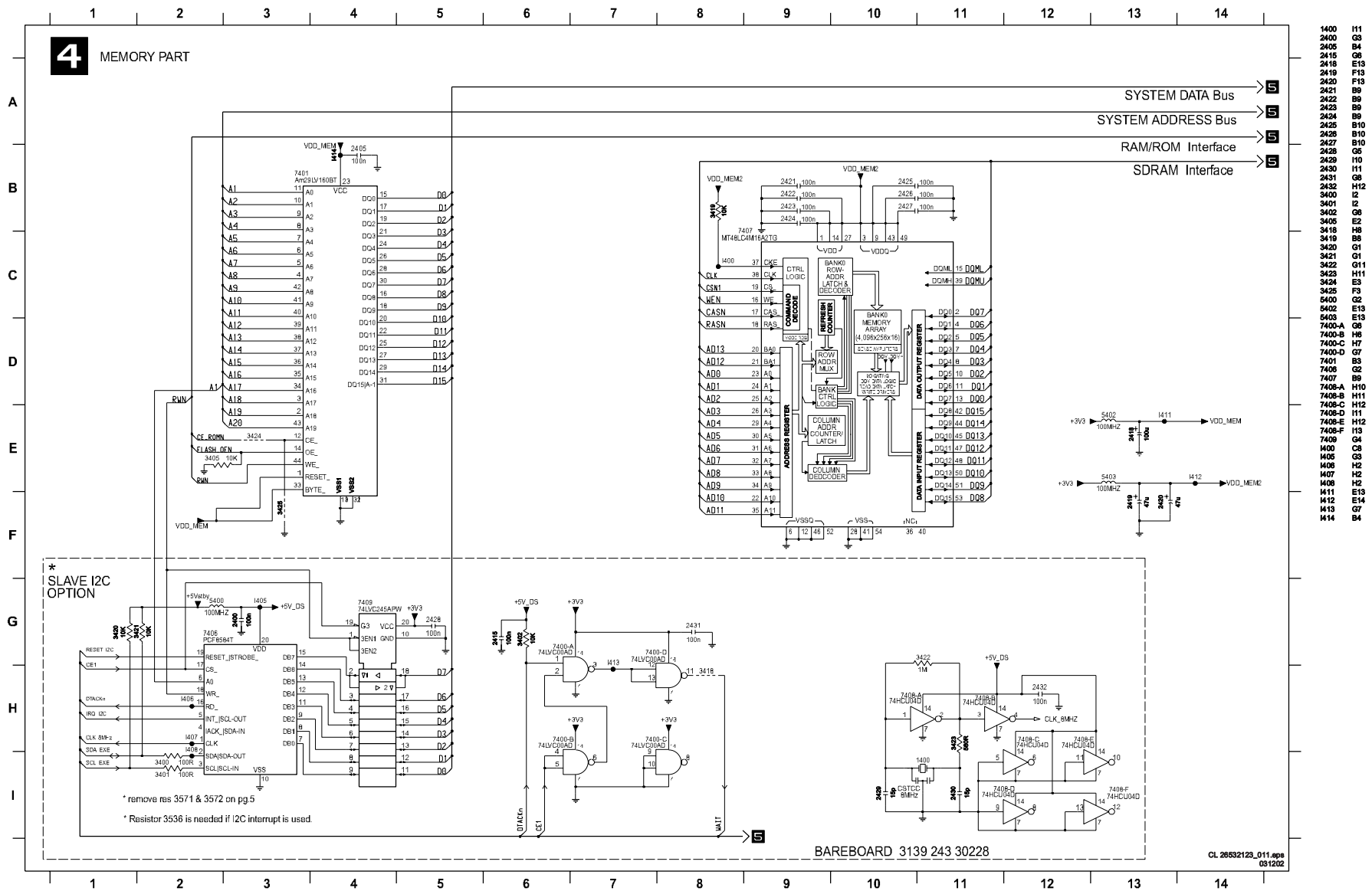
Monoboard



Monoboard



Monoboard



The diagram is a complex schematic of a digital circuit board, organized into a grid with columns numbered 1 to 14 and rows labeled A to I. The central component is the **uP ST20cpu**, which is connected to various buses and interfaces.

Key Sections and Components:

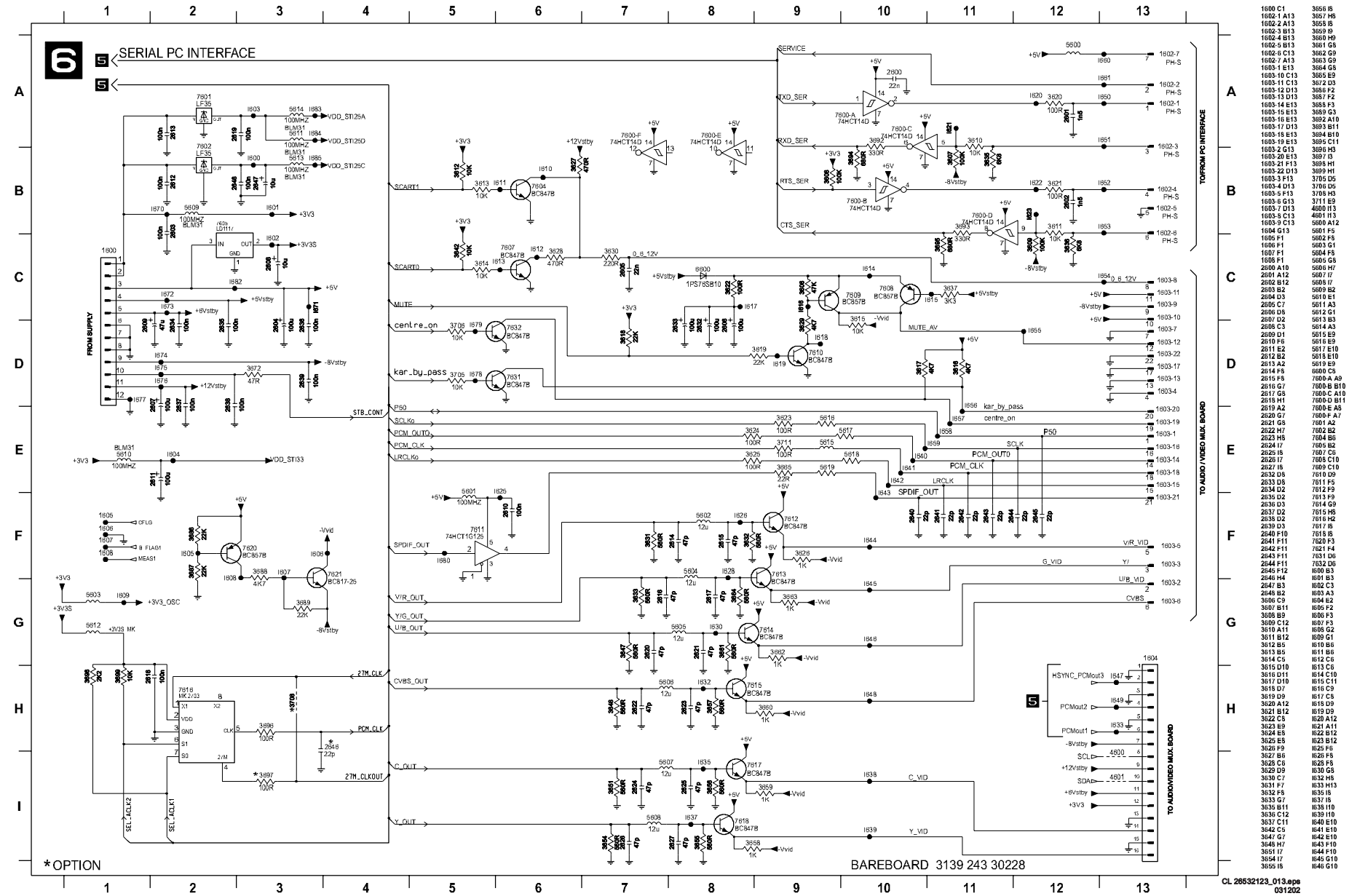
- Top Section (Rows A-C):** Contains the **BASIC ENGINE INTERFACE Bus**, **SYSTEM ADDRESS Bus**, and **SYSTEM DATA Bus**. It includes an **I2C Bus** with components like 7503, 7504, 7505, 7506, 7507, 7508, 7509, 7510, 7511, 7512, 7513, 7514, 7515, 7516, 7517, 7518, 7519, 7520, 7521, 7522, 7523, 7524, 7525, 7526, 7527, 7528, 7529, 7530, 7531, 7532, 7533, 7534, 7535, 7536, 7537, 7538, 7539, 7540, 7541, 7542, 7543, 7544, 7545, 7546, 7547, 7548, 7549, 7550, 7551, 7552, 7553, 7554, 7555, 7556, 7557, 7558, 7559, 7560, 7561, 7562, 7563, 7564, 7565, 7566, 7567, 7568, 7569, 7570, 7571, 7572, 7573, 7574, 7575, 7576, 7577, 7578, 7579, 7580, 7581, 7582, 7583, 7584, 7585, 7586, 7587, 7588, 7589, 7590, 7591, 7592, 7593, 7594, 7595, 7596, 7597, 7598, 7599, 7600, 7601, 7602, 7603, 7604, 7605, 7606, 7607, 7608, 7609, 7610, 7611, 7612, 7613, 7614, 7615, 7616, 7617, 7618, 7619, 7620, 7621, 7622, 7623, 7624, 7625, 7626, 7627, 7628, 7629, 7630, 7631, 7632, 7633, 7634, 7635, 7636, 7637, 7638, 7639, 7640, 7641, 7642, 7643, 7644, 7645, 7646, 7647, 7648, 7649, 7650, 7651, 7652, 7653, 7654, 7655, 7656, 7657, 7658, 7659, 7660, 7661, 7662, 7663, 7664, 7665, 7666, 7667, 7668, 7669, 7670, 7671, 7672, 7673, 7674, 7675, 7676, 7677, 7678, 7679, 7680, 7681, 7682, 7683, 7684, 7685, 7686, 7687, 7688, 7689, 7690, 7691, 7692, 7693, 7694, 7695, 7696, 7697, 7698, 7699, 7700, 7701, 7702, 7703, 7704, 7705, 7706, 7707, 7708, 7709, 7710, 7711, 7712, 7713, 7714, 7715, 7716, 7717, 7718, 7719, 7720, 7721, 7722, 7723, 7724, 7725, 7726, 7727, 7728, 7729, 7730, 7731, 7732, 7733, 7734, 7735, 7736, 7737, 7738, 7739, 7740, 7741, 7742, 7743, 7744, 7745, 7746, 7747, 7748, 7749, 7750, 7751, 7752, 7753, 7754, 7755, 7756, 7757, 7758, 7759, 7760, 7761, 7762, 7763, 7764, 7765, 7766, 7767, 7768, 7769, 7770, 7771, 7772, 7773, 7774, 7775, 7776, 7777, 7778, 7779, 7780, 7781, 7782, 7783, 7784, 7785, 7786, 7787, 7788, 7789, 7790, 7791, 7792, 7793, 7794, 7795, 7796, 7797, 7798, 7799, 7800, 7801, 7802, 7803, 7804, 7805, 7806, 7807, 7808, 7809, 7810, 7811, 7812, 7813, 7814, 7815, 7816, 7817, 7818, 7819, 7820, 7821, 7822, 7823, 7824, 7825, 7826, 7827, 7828, 7829, 7830, 7831, 7832, 7833, 7834, 7835, 7836, 7837, 7838, 7839, 7840, 7841, 7842, 7843, 7844, 7845, 7846, 7847, 7848, 7849, 7850, 7851, 7852, 7853, 7854, 7855, 7856, 7857, 7858, 7859, 7860, 7861, 7862, 7863, 7864, 7865, 7866, 7867, 7868, 7869, 7870, 7871, 7872, 7873, 7874, 7875, 7876, 7877, 7878, 7879, 7880, 7881, 7882, 7883, 7884, 7885, 7886, 7887, 7888, 7889, 7890, 7891, 7892, 7893, 7894, 7895, 7896, 7897, 7898, 7899, 7900, 7901, 7902, 7903, 7904, 7905, 7906, 7907, 7908, 7909, 7910, 7911, 7912, 7913, 7914, 7915, 7916, 7917, 7918, 7919, 7920, 7921, 7922, 7923, 7924, 7925, 7926, 7927, 7928, 7929, 7930, 7931, 7932, 7933, 7934, 7935, 7936, 7937, 7938, 7939, 7940, 7941, 7942, 7943, 7944, 7945, 7946, 7947, 7948, 7949, 7950, 7951, 7952, 7953, 7954, 7955, 7956, 7957, 7958, 7959, 7960, 7961, 7962, 7963, 7964, 7965, 7966, 7967, 7968, 7969, 7970, 7971, 7972, 7973, 7974, 7975, 7976, 7977, 7978, 7979, 7980, 7981, 7982, 7983, 7984, 7985, 7986, 7987, 7988, 7989, 7990, 7991, 7992, 7993, 7994, 7995, 7996, 7997, 7998, 7999, 8000.
- Left Section (Rows D-F):** Features the **RAM/ROM Interface** and **MEMORY interface**.
- Bottom Section (Rows G-I):** Includes the **SDRAM Interface** and **FRONT-END Interface**.
- Right Section (Columns 12-14):** Contains the **TOFROM AUDIOVIDEO MUX BOARD** connection and various peripheral components like **AC3 LPCM MPEG1/2**, **KARAOKE**, **VIDEO ENCODER**, and **SDRAM CONTROLLER**.

The diagram also shows numerous resistors, capacitors, and integrated circuits, with some components marked as "OPTION". A "TOFROM AUDIOVIDEO MUX BOARD" connection is shown on the right side.

Project	Loc. 7503	Remarks	Digital YUV Option	Karaoke Option	PLL_CLK chip Option	PLL Rework Issue
SD3.0	St5650/Cd 1.8	Replace 5505	Insert Conn 1508 & Rpk 3580/1	Insert Conn 1507, res 3528-9 & caps 2513-8	As is	Remove 3521; replace 2510 w. jump
SD3.0	St5650/Cd 2.0	Replace 5505	Insert Conn 1508, Rpk 3580/1 & R3707	Insert Conn 1507, res 3528-9 & caps 2513-8	Don't Insert 7818, 5612, 3699-99, 3703, 2618 & 2648	No Rework
SD3.1	St5650	OTS Decoding, PCM_OUT3	Insert Conn 1508, Rpk 3580/1 & R3707	Insert Conn 1507, res 3528-9 & caps 2513-8	Don't Insert 7818, 5612, 3699-99, 3703, 2618 & 2648	No Rework
SD3.3	St56519	5608 minus Karaoke	Insert Conn 1508, Rpk 3580/1 & R3707	No Karaoke	Don't Insert 7818, 5612, 3699-99, 3703, 2618 & 2648	No Rework

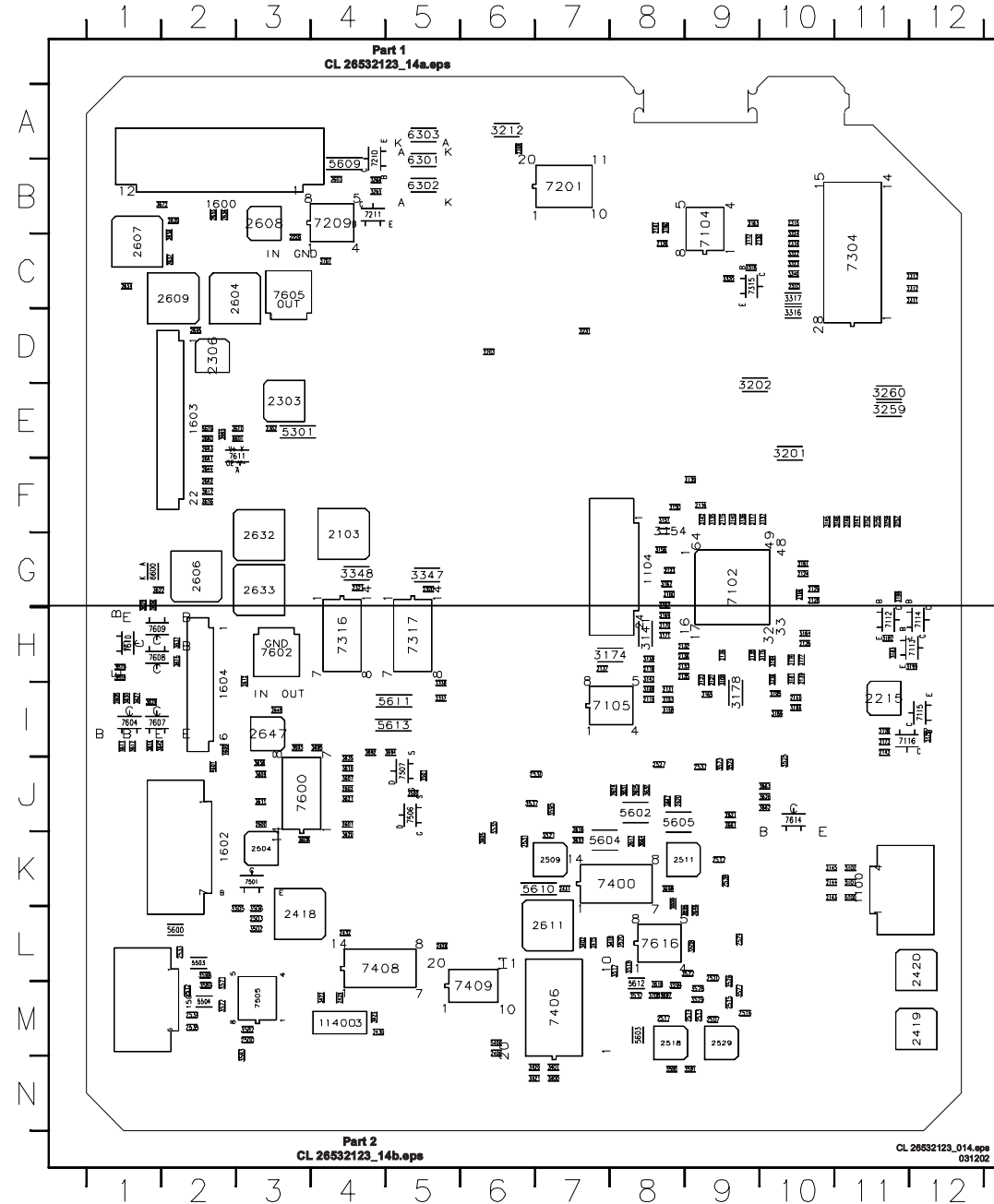
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Monoboard



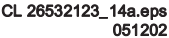
The components in the "Option A" block ie. x'or 7630, res. 3700, 3701 are not required anymore.
It was originally used in the Gapfiller project.

Layout Monoboard (Overview Top Side)

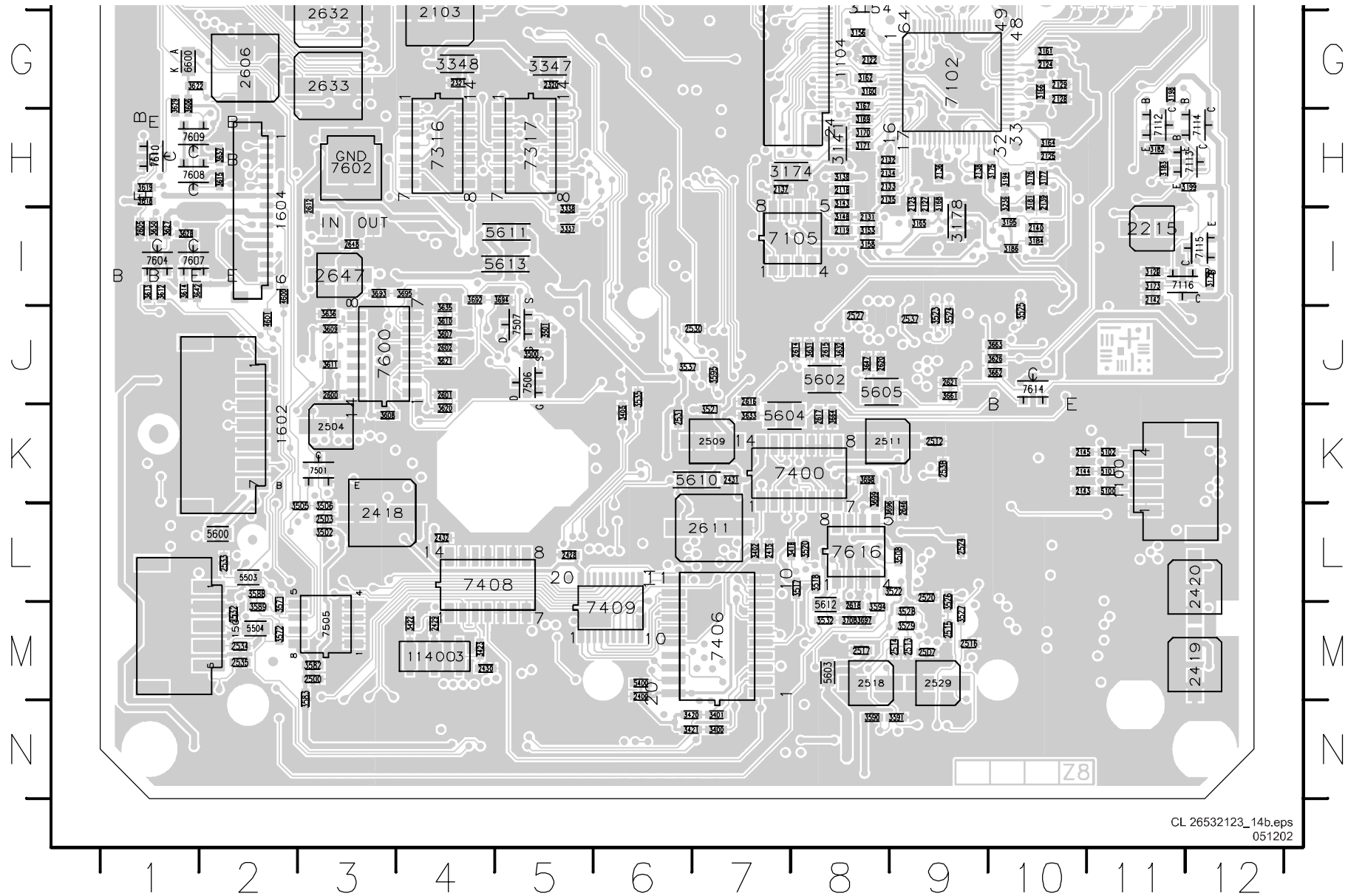


1100	K11	2618	M6	3500	J5	7112	H11
1104	G8	2620	J8	3501	J5	7113	H12
1400	M4	2621	J8	3502	L3	7114	H12
1801	M2	2632	G3	3505	L3	7115	H12
1800	B2	2633	G3	3506	L3	7116	H11
1802	K2	2634	C1	3508	L8	7201	B7
1803	E2	2635	B2	3517	L8	7208	B4
1804	I2	2636	B2	3518	L8	7210	A4
2103	G4	2637	C2	3520	L8	7211	B4
2115	F9	2638	C2	3521	K7	7304	C11
2116	F9	2639	B2	3522	L9	7315	C9
2117	F9	2640	E2	3523	J9	7316	H4
2118	H8	2641	F2	3524	J9	7317	H5
2119	I8	2642	F2	3525	J10	7400	K8
2122	G8	2643	E2	3526	M9	7405	M7
2123	H8	2644	F2	3527	M9	7406	L4
2124	G10	2645	D2	3528	M9	7409	M8
2125	H10	2646	L9	3529	M9	7501	K3
2126	C8	2647	I3	3532	M8	7505	M3
2127	H9	2648	I3	3535	J6	7606	J5
2128	G10	3120	H11	3537	J6	7607	J5
2129	G10	3135	F9	3571	M2	7600	J3
2130	C9	3136	F9	3572	M2	7602	H3
2131	I8	3137	F10	3582	M3	7604	I1
2132	H8	3138	H8	3583	M3	7605	C3
2133	H8	3139	F9	3586	L2	7607	I1
2134	H8	3140	F9	3589	M2	7608	H1
2135	H8	3141	H8	3590	N8	7609	H1
2136	H9	3142	F9	3591	N9	7610	H1
2137	H7	3143	H8	3594	M8	7611	E3
2138	H9	3145	F10	3595	J7	7614	J10
2139	H10	3146	F11	3606	G1	7616	L8
2140	I10	3147	F11	3607	J4		
2141	B6	3148	I8	3608	K3		
2142	I11	3149	F11	3609	J3		
2143	K10	3150	F8	3610	J4		
2144	K10	3151	F8	3611	J3		
2145	K10	3152	F11	3612	I1		
2203	D6	3153	I8	3613	I1		
2208	A6	3154	F8	3614	I1		
2215	I11	3155	F11	3615	H2		
2229	C3	3156	G8	3616	F2		
2302	E3	3157	F11	3617	F2		
2303	E3	3158	I8	3618	H1		
2306	D2	3159	F11	3619	H1		
2310	C10	3160	G8	3620	K4		
2311	C12	3161	G10	3621	J4		
2312	C12	3162	G8	3622	G1		
2313	C12	3163	M8	3623	J10		
2314	C10	3164	H10	3627	I1		
2315	B10	3165	I8	3628	I1		
2320	G6	3166	G10	3629	G1		
2321	G4	3167	G8	3630	I1		
2400	M6	3168	H9	3631	J8		
2415	L7	3169	H8	3632	J8		
2416	L3	3170	H8	3633	K7		
2419	M12	3171	H8	3635	J4		
2420	L12	3172	C9	3636	J3		
2426	L5	3173	H11	3637	H2		
2429	M4	3174	H8	3642	I1		
2430	M4	3175	H10	3647	J6		
2431	K7	3176	H10	3651	J9		
2432	L4	3177	H10	3652	J10		
2500	M3	3178	I8	3653	J10		
2503	L3	3179	H12	3654	K8		
2504	K3	3180	B8	3655	E2		
2507	M9	3181	H10	3672	B2		
2509	K7	3182	H11	3682	J4		
2511	K8	3183	H11	3683	I3		
2512	K9	3184	H10	3684	I5		
2513	M9	3185	H10	3685	I4		
2514	M9	3184	H10	3686	L8		
2515	M9	3185	H10	3687	M8		
2516	M9	3186	G11	3688	K8		
2517	M9	3189	H12	3699	K8		
2518	M8	3201	E10	3707	C4		
2520	L8	3202	E9	3708	M6		
2524	L8	3212	A8	4800	I2		
2527	J8	3221	D7	4801	J2		
2529	M9	3226	H10	5100	K11		
2530	J7	3259	E11	5101	K11		
2531	K8	3260	E11	5102	K11		
2532	M2	3261	B4	5301	E3		
2533	L2	3266	B4	5400	M6		
2534	M2	3316	D10	5503	L2		
2535	M2	3317	C10	5504	M2		
2537	J8	3318	C9	5600	L2		
2538	K9	3320	C9	5601	E3		
2560	J3	3322	C10	5602	J8		
2601	J4	3323	C10	5603	M8		
2602	J4	3324	B10	5604	K7		
2603	B4	3337	I5	5605	J8		
2604	C2	3338	I5	5609	B4		
2605	I1	3340	C10	5610	K7		
2606	G2	3347	G5	5611	I5		
2607	C1	3348	G4	5612	M6		
2608	B3	3400	N7	5613	I5		
2609	C2	3401	N7	5619	E2		
2610	E3	3402	L7	6301	B5		
2611	L7	3405	K8	6302	B5		
2612	H3	3415	L8	6303	A5		
2614	J8	3420	N6	6600	G1		
2615	J8	3421	N6	7102	G9		
2616	J7	3422	M4	7104	B9		
2617	K8	3423	M4	7105	I8		

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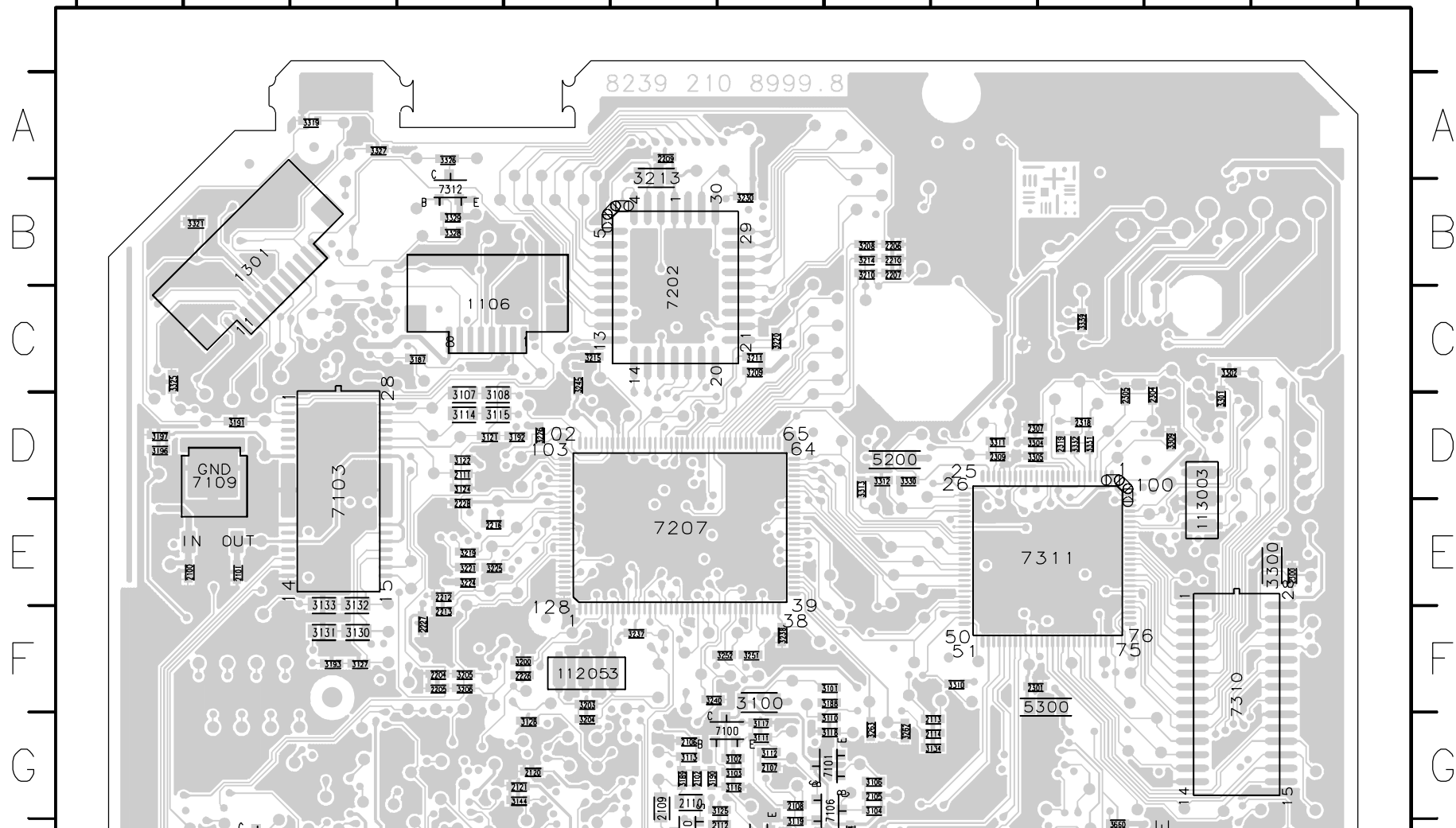


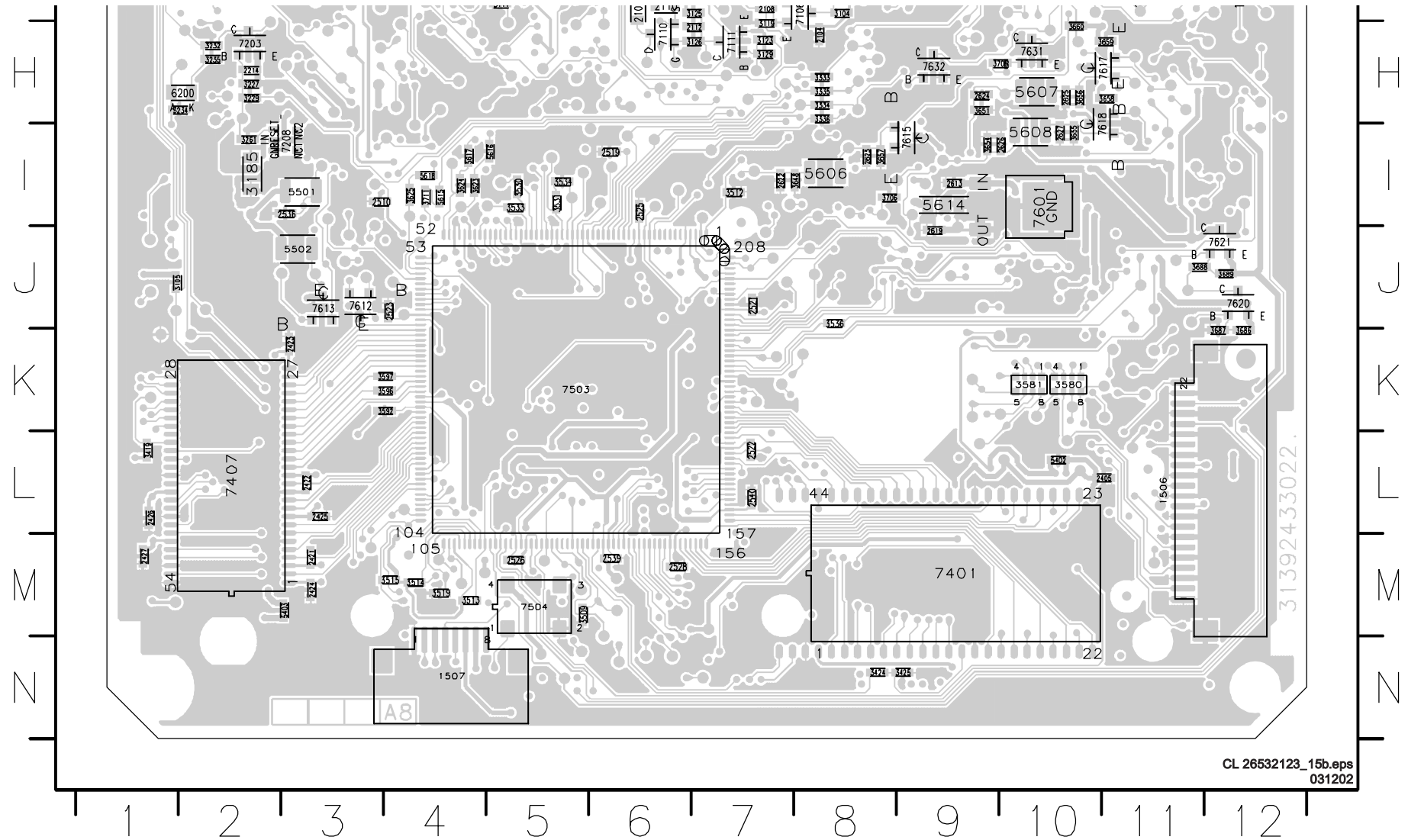
Layout Monoboard (Part 2 Top Side)



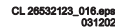
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1206	F4	3134	GH	3686	K12
1300	E11	3144	GS	3687	K12
1302	E2	3144	GS	3688	K11
1300	L11	3187	CA	3689	J12
1607	NA	3188	F8	3705	H10
2100	E2	3188	GH	3708	E8
2100	E2	3204	GS	3711	H4
2102	GH	3191	D2	5200	D8
2104	H8	3192	D5	5300	F10
2106	GH	3193	F3	5402	L10
2109	F3	3196	GS	5403	M3
2107	G7	3197	D1	5501	I3
2108	G7	3200	F5	5602	I3
2108	GH	3203	F5	5606	B8
2110	G7	3204	GS	5607	H10
2111	D4	3205	F4	5608	H10
2112	H7	3205	F4	9614	H9
2120	GH	3208	B8	9615	H4
2120	GH	3209	B8	9616	B8
2129	GS	3210	B8	9617	H4
2121	GS	3211	C7	9618	H4
2204	F4	3213	GH	6200	H2
2205	GH	3214	GH	7100	G7
2206	B8	3215	GS	7101	F8
2207	B8	3219	E4	7103	D3
2208	HA	3220	G7	7108	GH
2210	G7	3221	GH	7109	D2
2212	E4	3224	E4	7110	H6
2213	F4	3225	E4	7111	H7
2214	H2	3226	D5	7202	GH
2215	F4	3227	E4	7203	H2
2226	F5	3229	H2	7207	E8
2227	F4	3230	B7	7208	I3
2228	GH	3232	E4	7310	F11
2300	F2	3234	H2	7311	E10
2301	F9	3235	H2	7312	B4
2301	D11	3237	F8	7401	M9
2302	D10	3238	F7	7407	L2
2303	D7	3239	F8	7503	B3
2309	D6	3245	GS	7504	M5
2310	D10	3261	F7	7601	H10
2311	GH	3262	GH	7612	I3
2405	L11	3261	I2	7613	I3
2421	M3	3262	GH	7615	H9
2422	M3	3263	GH	7617	H11
2423	M3	3300	E12	7618	H11
2424	M3	3301	E12	7620	J12
2425	L3	3302	C11	7621	J12
2426	L31	3304	D9	7631	H31
2427	L31	3305	D9	7632	H9
2510	I3	3309	D9		
2519	B6	3310	F9		
2527	J7	3311	D9		
2528	J7	3312	D8		
2529	J4	3313	D8		
2529	B6	3319	GS		
2529	M5	3321	B2		
2530	M5	3325	C1		
2531	C3	3326	H4		
2539	M8	3327	GS		
2540	L7	3328	B4		
2541	L7	3329	B4		
2549	J0	3330	D8		
2622	H7	3331	D10		
2623	H7	3332	D10		
2624	H7	3333	D10		
2625	H10	3334	H8		
2626	H10	3335	H8		
2627	H10	3336	H8		
2628	H10	3337	D10		
2629	H10	3338	D10		
2630	H10	3339	D10		
3101	F8	3419	L11		
3102	G7	3424	N8		
3103	G7	3425	N8		
3104	G7	3426	N8		
3105	J1	3512	I7		
3108	G8	3513	M4		
3107	D4	3514	M4		
3108	D4	3515	M4		
3107	G8	3519	M4		
3111	G7	3530	I5		
3112	G7	3531	I5		
3113	G7	3532	I5		
3114	D4	3534	I5		
3115	D4	3536	J8		
3116	G7	3590	H10		

1 2 3 4 5 6 7 8 9 10 11 12





1 2 3 4 5 6 7 8 9 10 11 12



1605	D12	1085	H6	2778	E8	1615	38	8445	C11
1606	D12	1086	H3	2779	F6	1616	38	8446	J1
1607	D12	1087	H3	2880	E8	1617	38	8447	H11
1608	D12	1088	H3	2880	F6	1618	38	8448	D11
1609	L14	1083	F8	2280	C10	1619	110	8647	H11
1701	L7	1084	G2	2885	C7	1624	17	8650	J11
1702	L7	1085	G6	2886	F7	1625	18	8651	K11
1703	H6	1086	H6	2887	F6	1626	38	8652	K11
1704	L7	1087	G6	2889	H3	1629	38	8653	K11
1705	N7	1088	G6	2899	H3	1630	38	8654	I12
F800	B12	1089	G6	3000	D11	1631	130	8655	H11
F801	B12	1090	G6	3001	D11	1632	130	8656	H11
F802	B12	1121	B5	3002	C10	1633	30	8657	H510
F803	B11	1122	A5	3003	D10	1634	131	8658	D11
F804	B11	1123	B8	3004	D11	1635	130	8659	D11
F805	B12	1124	B2	3005	D11	1636	130	8660	L11
F806	B11	1125	H2	3006	D10	1637	130	8661	J11
F807	B10	1126	H2	3007	D10	1638	30	8670	S10
F808	F7	1127	H2	3008	E8	1639	16	8671	B4
F809	F7	1128	H2	3009	E8	1640	16	8672	H11
M003	G6	1306	D36	3100	F9	1642	M5	8703	C12
M004	G6	1331	F8	3111	D8	1643	M5	8704	J10
M005	F7	1332	D8	3112	D8	1644	13	8675	B11
M006	F7	1333	D8	3113	H8	1645	14	8676	E1
M007	F7	1334	A7	3114	H8	1646	13	8677	C9
M008	H6	1335	E8	3115	H8	1647	33	8678	H10
M009	H6	1336	B8	3116	H8	1648	14	8679	E1
M010	G8	1337	F7	3117	H8	1649	14	8680	D2
M11	G8	1338	F7	3118	H8	1650	34	8682	C11
M12	G8	1440	J7	3119	H8	1651	14	8683	J4
M13	G7	1441	C7	3120	F9	1652	14	8684	J4
M14	G7	1442	C10	3121	F10	1653	14	8685	J4
M15	G8	1443	B8	3122	F10	1655	16	8700	H6
M16	F7	2000	D11	3123	F12	1656	16	7701	H6
M17	F7	2001	F7	3124	F12	1657	16	7702	H6
M18	F4	2002	F4	3125	E12	1658	15	7703	H5
M19	F5	2005	C8	3126	C12	1659	N5	7704	H5
M20	F7	2006	F7	3127	D12	1660	16	7705	H5
M21	F4	2007	F4	3128	E12	1661	16	7706	H5
M22	F9	2008	D8	3229	E11	1662	15	7707	H5
M23	F8	2009	A7	3300	F9	1663	13	7708	H5
M24	F4	2100	C8	3311	C11	1664	13	7709	H5
M25	F4	2101	C7	3312	C11	1665	13	7710	C3
M26	G3	2112	C5	3333	G11	1671	16	7711	B3
M27	F4	2113	C7	3334	E12	1672	H7	7712	C3
M28	G3	2114	E5	3335	D12	1673	H7	7713	B4
M29	G2	2115	E4	3336	D12	1674	16	7714	B5
M30	G2	2116	F4	3337	E11	1675	16	7715	C5
M31	G2	2220	B5	3341	E11	1679	L11	7716	C5
M32	F12	2240	E5	3339	E11	1680	K11	7717	C3
M33	F2	2241	E4	3340	E11	1681	K11	7718	C3
M34	G2	2223	B5	3411	G11	1682	10	7719	H5
M35	F2	2224	D6	3412	G10	1683	N8	7720	J2
M36	G3	2225	D5	3413	F10	1684	N8	7721	J2
M37	G3	2228	H3	3414	F12	1685	J9	7752	K1
M38	G3	2228	H5	3415	G12	1686	J9	7753	K2
M39	H3	2230	D5	3416	G11	1687	M4	7754	K2
M40	H3	2239	A5	3417	G11	1688	M4	7755	K2
M41	H3	2228	D9	3418	C3	1689	M3	7756	K2
M42	H4	2311	D9	3419	C3	1690	L4	7757	K2
M43	H4	2314	G8	3500	C3	1691	H10	7758	K2
M44	H3	2315	F8	3501	C3	1692	H9	7759	K2
M45	G3	2316	E4	3502	C3	1693	M5	7760	H11
M46	H3	2317	E4	3503	C3	1694	N9	7761	H11
M47	G4	2318	F4	3504	A4	1695	K11	7762	H11
M48	H3	2319	F5	3505	A4	1696	K11	7763	H11
M49	H3	2340	F6	3506	A4	1697	J9	7764	H11
M50	H3	2411	D5	3507	A3	1698	M8	7765	H11
M51	H4	2412	F6	3508	B4	1699	J11	7766	H11
M52	G3	2413	F6	3509	B4	1700	J11	7767	H11
M53	C3	2444	F9	3800	D2	1701	K07	8007	J11
M54	H4	2417	H6	3801	D2	1702	K11	8008	J11
M55	G4	2448	H7	3802	D2	1703	M5	8009	M5
M56	G4	2449	H8	3803	D2	1704	M5	8010	M5
M57	H5	2500	D8	3804	A3	1711	H12	8011	H12
M58	C5	2511	D5	3865	D1	1812	H11	8112	H11
M59	G4	2442	C7	3886	C2	1813	H12	8012	H12
M60	D2	2503	E2	3887	C2	1814	H12	8013	H12
M61	D2	2504	C7	3888	C3	1815	H12	8014	H12
M62	D2	2505	C8	3889	C12	1816	G12	8015	H12
M63	D2	2506	D5	3870	C4	1817	H12	8016	H12
M64	H5	2507	F4	3871	C4	1818	H12	8017	H12
M65	H5	2528	E4	3732	D9	1819	H12	8018	H12
M66	H5	2529	B5	3733	B9	1820	K10	8019	H12
M67	H5	2560	F7	3734	B9	1821	K10	8020	H12
M68	G5	2611	F6	4005	M7	8222	J9	8021	H12
M69	G5	2622	F8	4006	K7	8223	J10	8022	H12
M70	D4	2603	F6	4007	N8	8225	E11	8023	H12
M71	D4	2604	F6	4008	N8	8226	E11	8024	H12
M72	D4	2605	A7	4111	M10	8230	J3	8025	H12
M73	D4	2606	A7	4112	M10	8231	J3	8026	H12
M74	C3	2607	F8	4113	K8	8332	18	8027	H12
M75	C3	2608	F8	4114	K8	8333	18	8028	H12
M76	E3	2609	A5	5001	K11	8334	H11	8029	H12
M77	J1	2720	A8	5002	M8	8337	111	8030	H12
M78	J2	2711	A8	5003	J11	8338	111	8031	H12
M79	J2	2722	C3	5004	K7	8339	111	8032	H12
M80	J1	2723	D8	5006	19	8640	G10	8033	H12
M81	J1	2724	D8	5007	J11	8641	19	8034	H12
M82	H8	2715	E9	5006	K7	8642	G10	8035	H12
M83	H8	2716	E9	5007	K7	8643	G10	8036	H12
M84	L4	2777	E8	5133	J7	8644	D11	8037	H12

1. Technical specifications

Specification

English

PLAYBACK SYSTEM

DVD-Video
Video CD & SVCD
CD (CD-R and CD-RW)
DVD+RW
MP3 (DVD622 only)

OPTICAL READOUT SYSTEM

Lasertype	Semiconductor AlGaAs
Numerical Aperture	0.60 (DVD) 0.45 (VCD/CD)
Wavelength	650 nm (DVD) 780 nm (VCD/CD)

DVD DISC FORMAT

Medium	Optical Disc
Diameter	12cm (8cm)
Playing time (12cm)	One layer 2.15 h* Dual layer 4 h* Two side 4.30 h* Single layer Two side 8 h* Dual layer

VIDEO FORMAT

DA Converter	10 bits
Signal handling	Components
Digital Compression	MPEG2 for DVD, MPEG1 for VCD

TV STANDARD (PAL/50Hz) (NTSC/60Hz)

Number of lines	625	525
Playback	Multistandard	(PAL/NTSC)

DVD

Horiz. Resolution	720 pixels	720 pixels
Vertical Resolution	576 lines	480 lines

VCD

Horiz. Resolution	352 pixels	352 pixels
Vertical Resolution	288 lines	240 lines

VIDEO PERFORMANCE

Video output	1 Vpp into 75 ohm
RGB (SCART) output	0.7 Vpp into 75 ohm
Black Level Shift	On/Off
Video Shift	Left/Right

AUDIO FORMAT

Digital	MPEG	Compressed Digital
	DTS/Dolby Digital	16, 20, 24 bits
	PCM	fs, 44.1, 48, 96 kHz

Analog Sound Stereo
Dolby Pro Logic downmix from Dolby Digital multi-channel sound
3D Sound (TruSurround) for virtual 5.1 channel sound on 2 speakers

AUDIO PERFORMANCE

DA Converter	24 bits	
DVD	fs 96 kHz	4 Hz - 44 kHz
	fs 48 kHz	4 Hz - 22 kHz
Video CD	fs 44.1 kHz	4 Hz - 20 kHz
CD	fs 44.1 kHz	4 Hz - 20 kHz
Signal-Noise (1kHz)		100 dB
Dynamic Range (1kHz)		97 dB
Crosstalk (1kHz)		110 dB
Distortion and Noise (1kHz)		88 dB
MPEG MP3		MPEG Audio L3

CONNECTIONS

SCART	Euroconnector
Video Output	Cinch (yellow)
Audio L+R output	Cinch (white/red)
Digital Output	1 coaxial IEC958 for CDDA / LPCM IEC1937 for MPEG1/2, Dolby Digital and DTS

CABINET

Dimensions (w x h x d)	435 x 81 x 295 mm
Weight	Approx. 3.5 Kg

GENERAL FUNCTIONALITY

Stop / Play / Pause
Fast Forward / Backward
Time Search
Step Forward / Backward
Slow Motion
Title / Chapter / Track Select
Skip Next / Previous
Repeat (Chapter / Title / All) or (Track / All)
A-B Repeat
Shuffle
Scan
New enhanced user graphical interface
Perfect Still with digital multi-tap filter
Zoom (x1.33, x2, x4) with picture enhancement
Smart Picture for convenient personal colour setting (DVD622 only)
PAL/NTSC Conversion (DVD622 only)
Screen Saver (Dim 75% after 15 min.)
3D Sound (TruSurround)
Virtual Jog Shuttle
Audio and video bit rate indicator

DVD FUNCTIONALITY

Multi-angle Selection
Audio Selection (1 out of max. 8 languages)
Subtitles Selection (1 out of max. 32 languages)
Aspect Ratio conversion (16:9, 4:3 Letterbox, 4:3 Pan Scan)
Parental Control and Disk Lock
Disc Menu support (Title Menu and Root Menu)
Resume (5 discs) after stop / standby
Programming Titles/chapters with Favourite Selection

VIDEO CD FUNCTIONALITY

Playback Control for VCD 2.0 discs
Disc Lock
Resume (5 discs) after stop / standby
Programming Tracks with Favourite Selection

AUDIO CD FUNCTIONALITY

Time Display (Total / Track / Remaining Track Time)
Full audio functionality with remote control
Programming with Favourite Track Selection

MP3 FUNCTIONALITY (DVD622 only)

Time Display (Track)
Album and Track Selection
Repeat (Disc / Album / Track)

* typical playing time for movie with 2 spoken languages and 3 subtitle languages.

Specifications subject to change without prior notice

2. Warnings and Laser safety instructions

GB

WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

ESD



NL

WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor elektrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op hetzelfde potentiaal.

F

ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfile le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D

WARNUNG

Alle IC und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unvorsichtige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern.
Sorgen Sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

I

AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten.
Der Originalzustand des Gerats darf nicht verändert werden.
Für Reparaturen sind Original-Ersatzteile zu verwenden.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt terug gebracht en dat onderdelen, identiek aan de gespecificeerde worden toegepast.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati pezzi di ricambio identici a quelli specificati.



F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

SHOCK, FIRE HAZARD SERVICE TEST:

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom,
Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before return to user/customer.
Ref.UL Standard NO.1492.

NOTE ON SAFETY:

Symbol  : Fire or electrical shock hazard. Only original parts should be used to replace any part with symbol 
Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

LASER SAFETY

This unit employs a laser. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

LASER DEVICE UNIT

Type:	SemiconductorlaserGaAlAs
Wave length:	650 nm (DVD) 780 nm (VCD/CD)
Output Power:	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence:	60 degree



USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

AVOID DIRECT EXPOSURE TO BEAM

WARNING

The use of optical instruments with this product will increase eye hazard.
Repair handling should take place as much as possible with a disc loaded inside the player

WARNING LOCATION: INSIDE ON LASER COVERSIELD

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN
WARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN
VARO! AVATT AESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Warning for powersupply on position 1005

The primary side of the powersupply including the heatsink carries live mains voltage when the player is connected to the mains even when the player is switched off !

This primary area is not shielded so it is possible to touch copper tracks and/or components when servicing the player. Service personnel have to take precautions to prevent touching this area or components in this area .

The primary side of the powersupply has been indicated with a lightning stroke and a stripe-marked printed on the printed wiring board

2.1 Notes

2.1.1 DVD-Module

For repair of the DVD-module ASD1, the service manual 3122 785 10840 has to be used.

2.1.2 Compair

For assistance with the repair process of the monoboard an electronic Fault finding guidance has been developed , this program is called COMPAIR.

This COMPAIR program is available on CDROM.

The Version of the CDROM for repair of the monoboard is V1.3 and can be ordered with codenumber : 4822 727 21637. This is an update CDROM , so when the COMPAIR CDROM is used for the first time , one has to install the COMPAIR ENGINE CDROM V1.2 first.

The V1.2 CDROM can be ordered with codenumber 4822 727 634 and has to be registered after installation , the procedure for registration is explained in the help file of the program and in the booklet from the CDROM.

The cable to connect the monoboard with a PC can be ordered with codenumber 3122 785 90017.

All the hardware and software requirements of the systems necessary for working with COMPAIR is described on the CDROM.

3. Directions for use

Important Note

DK

Advarsel:

Laserudstråling ved åbning når sikkerhedsbrydere er ude af funktion. Undgå udsættelse for stråling.

Bemærk:

Netafbryderen POWER er sekundært indkoblet og afbryder ikke strømmen fra nettet. Den indbyggede neddel er derfor tilsluttet til lysnettet så længe netstikket sidder i stikkontakten.

N

Observer:

Netbryteren POWER er sekundært indkoblet. Den indbyggede neddel er derfor ikke frakoblet nettet så længe apparatet er tilsluttet netkontakten.

S

Klass 1 laserapparat

Varning!

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kann användaren utsättas för laserstrålning som överskrider gränsen för laserklass 1.

Observera!

Strömavbrytaren POWER är sekundärt kopplad och inte bryter strömmen från nätet. Den inbyggda neddelen är därför ansluten till elnätet så länge stöckproppen sitter i vägguttaget.

SF

Luolan 1 laseriläite + Klass 1 laserapparaat

Varoitus!

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainituilla tavalla saattaa altistaa käyttäjän turvallisuustilueen 1 ylitäivälle laserlailille.

Huom.

Toiminanvalvitsin POWER on kytketty toisiopuolelle, eikä se lytkie laitetta irti sähköverkosta. Säännätkennetu verkko-osa on kytkettynti sähköverkkoon aina silloin, kun pistoke on pistorasiasa.

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Important Note for Users in the UK

Mains plug

This apparatus is fitted with an approved 13 Amp plug. To change a fuse in this type of plug proceed as follows:

1. Remove fuse cover and fuse.
2. Fix new fuse which should be a BS1362 5 Amp, A.S.T.A. or BSI approved type.
3. Refit the fuse cover.

If the fitted plug is not suitable for your socket outlets, it should be cut off and an appropriate plug fitted in its place. If the mains plug contains a fuse, this should have a value of 5 Amp. If a plug without a fuse is used, the fuse at the distribution board should not be greater than 5 Amp.

Note: The severed plug must be disposed of to avoid a possible shock hazard should it be inserted into a 13 Amp socket elsewhere.

How to connect a plug

The wires in the mains lead are coloured with the following code: blue = neutral (N), brown = live (L).

As these colours may not correspond with the colour markings identifying the terminals in your plug, proceed as follows:

- Connect the blue wire to the terminal marked N or coloured black.
- Connect the brown wire to the terminal marked L or coloured red.
- Do not connect either wire to the earth terminal in the plug, marked E (or e) or coloured green (or green and yellow).

Before replacing the plug cover, make certain that the cord grip is clamped over the sheath of the lead - not simply over the two wires.

Copyright in the U.K.
Recording and playback of material may require consent. See Copyright Act 1956 and The Performer's Protection Acts 1958 to 1972.

2 IMPORTANT NOTE



DVD-622
DVD-612



PHILIPS



Let's make things better

General Information



The region code for this set is 2.

Since it is usual for DVD movies to be released at different times in different regions of the world, all players have region codes and discs can have an optional region code. If you load a disc of a different region code to your player, you will see the region code notice on the screen. The disc will not playback and should be unloaded.

NOTE:
PICTURES SHOWN MAYBE DIFFERENT BETWEEN COUNTRIES.

NEVER MAKE OR CHANGE CONNECTIONS WITH THE POWER SWITCHED ON.

CAUTION
(WARNING LOCATION: ON THE BACKPLATE OF SET)

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CE The DVD-VIDEO player is in conformity with the EMC directive and low-voltage directive.

TruSurround and the SRS symbol are trademarks of SRS Labs, Inc. TruSurround technology is manufactured under license from SRS Labs, Inc.

TruSurround™
by **SRS**

For Customer Use:

Read carefully the information located at the bottom of your DVD-VIDEO player and enter below the Serial No. Retain this information for future reference.

Model No. DVD-VIDEO _____
Serial No. _____

Laser safety

This unit employs a laser. Due to possible eye injury, only a qualified service person should remove the cover or attempt to service this device.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

LASER	
Type	Semiconductor laser GaAlAs
Wave length	650 nm (DVD) 780 nm (VCD/CD)
Output Power	7 mW (DVD) 10 mW (VCD/CD)
Beam divergence	60 degree

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGA UDSÆTTELSE FOR STRÅLING ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN VARNING SYNLIG OCH OSYNLIG LASERSTRÅLNING NÅR DENNÄ DEL ÄR ÖPPNAD BETRÄKTA EJ STRÅLEN VARO! AVATTIATESSÄ OLET ALTTIINA NÄKYYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTELYLLE. ÄLÄ KATSO SÄTEESÄEN VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRÄHLUNG WENN ABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

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Introduction

Philips DVD-Video Introduction

Your Philips DVD-Video player will playback digital video discs conforming to the universal DVD-Video Standard. With it, you will be able to enjoy full-length movies with true cinema picture quality, as well as stereo or multi-channel sound (depending on the disc and your playback setup). The unique features of DVD-Video, such as selection of sound track, subtitle languages and different camera angles (disc dependent), are all supported.

In addition to DVD-Video discs, you will be able to playback all Video CDs, SVCDs and Audio CDs (including finalised CD Recordable and CD Rewritable).

DVD-Video

You will recognise DVD-Video discs by the logo shown. Depending on the material on the disc (a movie, video clips, a drama series, etc.) the disc may have one or more Titles.



Video CD

You will recognise Video CDs by the logo shown.



Super-VCD (SVCD)

SVCD discs based on the Super-VCD IO Standard referring to Standard of Electronics Industry of the People's Republic of China.

Audio CD

Audio CDs contain music tracks only. You will recognise Audio CDs by their logo shown.



MP3 (MPEG Audio Layer-3) (DVD622 only)

This player supports MP3 which contains compressed music tracks.

Note:

- Only the first session of multisession discs is supported

Unpacking

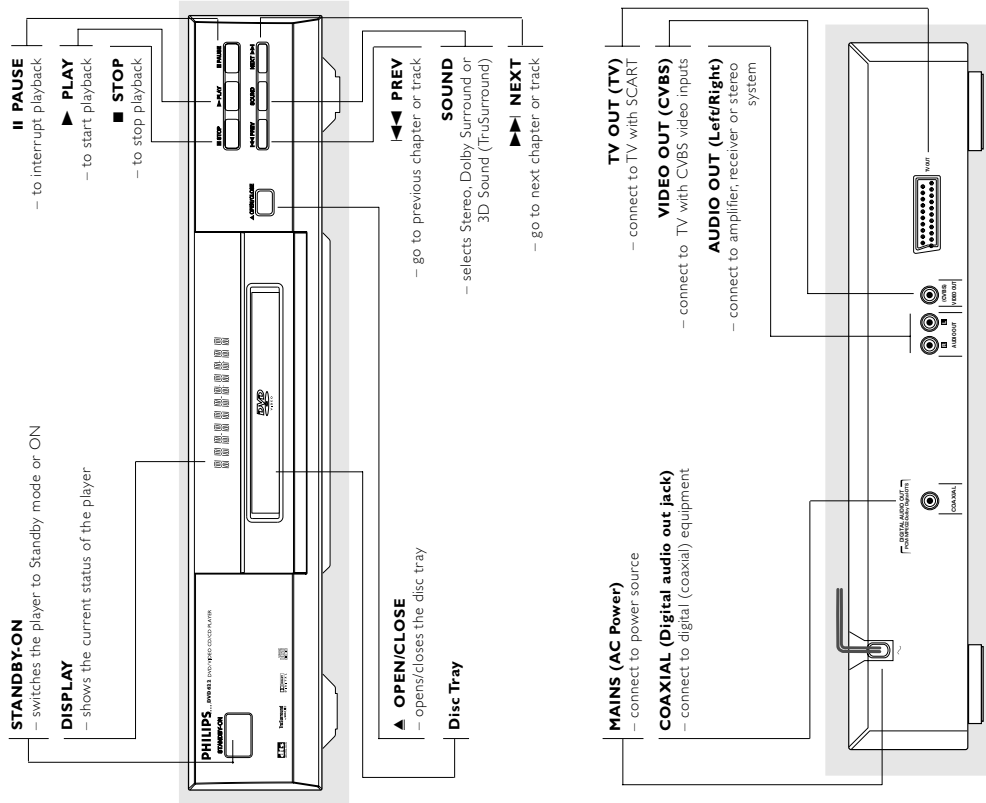
First check and identify the contents of your DVD-Video player package.

- You should have the following items.
 - DVD-Video player
 - Remote Control with batteries
 - Audio cable
 - SCART cable
 - Instructions for use

6 INTRODUCTION

Functional Overview

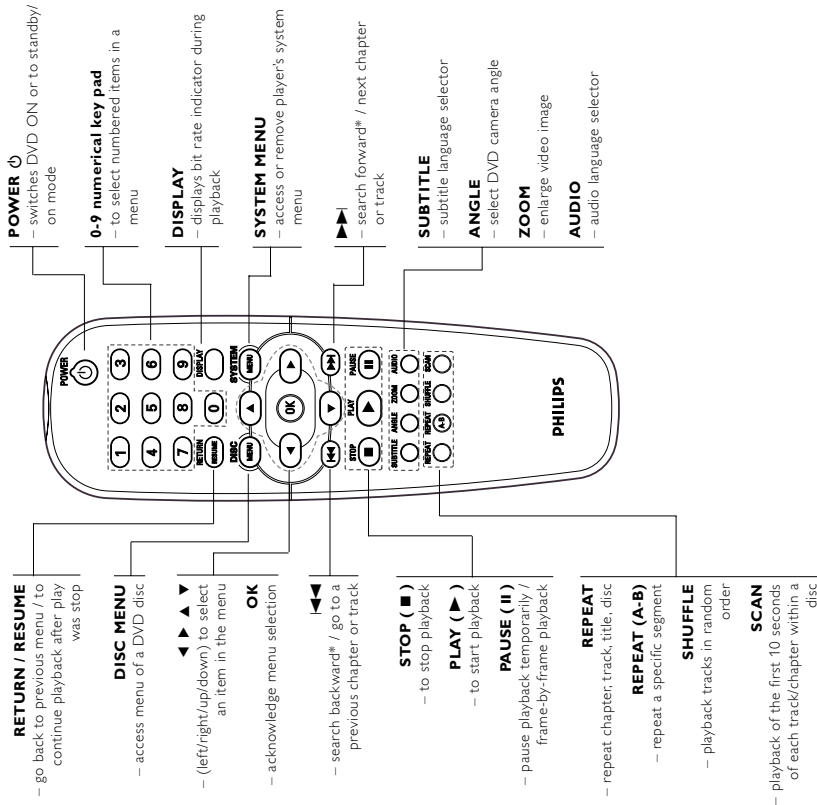
Front and Rear Panels



Caution: Do not touch the inner pins of the jacks on the rear panel connectors. Electrostatic discharge may cause permanent damage to the unit.

FUNCTIONAL OVERVIEW

Remote Control



Preparation

General Notes

- Depending on your TV and other equipment you wish to connect, there are various ways you could connect the player. Use only one of the connections described below.
- Please refer to the manuals of your TV/VCR Stereo System or other devices as necessary to make the best connections.
- For better sound reproduction, connect the player's audio out jacks to the audio in jacks of your amplifier/receiver; stereo or AV equipment. See 'Connecting to optional equipment'.

Caution:

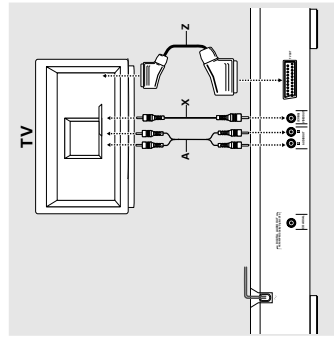
- Do not connect the player's audio out jack to the phono in jack of your audio system.
- Do not connect your DVD-player via your VCR. The DVD image could be distorted by the copy protection system.

Connecting to a TV

- Connect the SCART to the corresponding connector on the TV using the SCART cable supplied (Z).
- If your TV is not equipped with a SCART you can select one of the following alternative connections:

Video CVBS connection

- Connect the Video out (CVBS) jack to the video in jack on the TV using an optional video cable (X).
- Connect the Left and Right audio out jacks of the DVD player to the audio left/right in jacks on the TV (A).



Connecting to Optional Equipment

Connecting to an amplifier equipped with two channel analog stereo or Dolby Surround

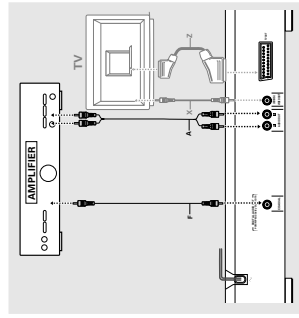
- Connect the audio Left and Right out jacks of the DVD player to the audio left and right in jack on your amplifier, receiver or stereo system, using an audio cable (A).

Connecting to an amplifier equipped with two channel digital stereo (PCM) or to an AV receiver equipped with a multi-channel decoder (Dolby Digital™, MPEG 2 and DTS)

- Connect the player's digital audio out jack (coaxial F) to the corresponding in jack on your amplifier. Use an optional digital (coaxial F) audio cable.
- You will need to activate the player's digital output (see 'Personal Preferences').

Digital Multi-channel sound

Digital multi-channel connection provides the best sound quality. For this you need a multi-channel AV receiver that supports one or more of the audio formats supported by your DVD player (MPEG 2, Dolby Digital™ and DTS). Check the receiver manual and the logos on the front of the receiver.



* Press key for about 2 seconds

Note:

- If the audio format of the digital output does not match the capabilities of your receiver, the receiver will produce a strong, distorted sound or no sound at all.
- Six Channel Digital Surround Sound via digital connection can only be obtained if your receiver is equipped with a Digital Multi-channel decoder.
- To see the selected audio format of the current DVD in the Status Window, press SYSTEM MENU or Audio.

NTSC/PAL Settings

You can switch the NTSC/PAL setting of the DVD player to match the video signal of your TV. This setting only affects the television's on-screen display that shows the stop and setup modes. You may select either NTSC or PAL. To change the DVD player setting to PAL or NTSC, follow the steps below.

- 1 Unplug the DVD player from the mains.
- 2 Press and hold **■** and **▶▶▶** on the front of the DVD player. While holding **■** and **▶▶▶**, plug in the mains.
- 3 After PAL or NTSC appears on the display panel of the DVD player, release **■** and **▶▶▶**, at the same time. The PAL or NTSC that appears on the display panel indicates the current setting.
- 4 To change the setting, press **▶▶▶** within three seconds. The new setting (PAL or NTSC) will appear on the display panel.

NTSC/PAL Conversion (DVD6122

only)

This player is equipt, with NTSC/PAL conversion feature to convert the video output of the disc to match with your TV system. The conversion supported are as per below.

Type	Disc	Format	Output format	
			Selected mode	
DVD	NTSC	NTSC	PAL	NTSC
		PAL	NTSC	PAL
VCD	NTSC	NTSC	PAL	NTSC
		PAL	NTSC	PAL

- 1 In the Preference Menu, select **TV System**.
- 2 Press **▲** or **▼** to select PAL, NTSC or AUTO.

Notes:

- **AUTO mode** can only be selected when using a multi-system TV.
- This is applicable for CVBS output on cinch and SCART only

General Explanation

About this manual

This manual gives the basic instructions for operating the DVD player. Some DVDs require specific operation or allow only limited operation during playback which may not respond to all operating commands. When this occurs, the symbol **✕** appears on the TV screen, indicating that the operation is not permitted by the player or the disc.

Remote control operation

- Unless stated, all operations can be carried out with the remote control. Always point the remote control directly at the player, making sure there are no obstructions in the path of the infrared beam. Corresponding keys on the front panel of the player can also be used.

Menu bar operation

- A number of operations can be carried out via the menu bar on the screen. The menu bar can be accessed by pressing the cursor keys on the remote control. Pressing SYSTEM MENU while the menu bar is displayed will clear the menu bar from the screen.
- The selected item will be highlighted and the appropriate cursor keys to operate will be displayed below the icon.
- < or > indicates that more items are available at the left/ right of the menu bar. Press ◀ or ▶ to select these items.

Initial Setup (Virgin Mode)

General

In Initial Setup, you may have to set your preferences for some of the player's features. (not applicable for all models)

Operation

After switching on the player for the very first time, the Initial Setup Screen will appear. The menu for the first item to be set is displayed and the first option is highlighted.

- Use the **▼** **▲** keys to go through the options in the menu. The icon of the selected option will be highlighted.
- Use OK to confirm your selection and to go to the next menu.

Note:

- Preferences have to be set in the order of which the item menus will appear on the screen.
 - The Initial Setup screen will only disappear after the settings for the last item have been confirmed.
 - If any keys other than **▼** **▲** or OK are pressed, **✕** will appear on the screen.
 - If the player is switched off while setting personal preferences, all preferences have to be set again after switching the player on again.

The following items may have to be set in Initial Setup:

Menu language

You can choose from different languages. The On Screen Menus will be displayed in the language available on the player.

Audio language

You can choose from different languages. If available on the disc, the player will play the audio in the selected language. If the selected language is not available, speech will revert to the first spoken language on the disc.

Subtitle language

You can choose from different subtitle languages. If available on the disc, subtitles will be in the language chosen. If the selected language is not available, subtitles will revert to the first subtitle language on the disc.

TV Shape

If you have a wide screen (16:9) TV, select 16:9. If you have a regular (4:3) TV, select 4:3. Letterbox for a 'wide-screen' picture with black bars top and bottom, or Pan Scan, for a full-height picture with the sides trimmed. If a disc supports the format, the picture will be shown accordingly.

Country

Select your country. This is used as input for the Parental Control feature (see Access Control).

Note:

- All these items may have to be set during Initial Setup. After that, they can always be changed in the Personal Preferences Menu.

Menu Bar/Status Window

As there are multiple menu-bars, the items on the menu-bar are arranged according to usage: availability of direct access keys. Pressing the OSD keys once will toggle through menu-bar-1, menu-bar-2, menu-bar-3 and OFF.

Menu-bar-1

- Personal Preferences
- Subtitle Language
- Audio Language
- Colour
- Sound

Menu-bar-2

- Step
- Slow motion
- Fast motion
- Angle
- Zoom

Menu-bar-3

- Title
- Chapter
- Time Search
- Favourite Track Selection (FTS)

Temporary Feedback Field Icons

- scan
- repeat
- title
- track
- chapter
- shuffle
- shuffle
- 6
- 6.9
- 24
- locked
- safe
- resume
- action

Picture

- **TV Shape**

See 'Initial Setup'.

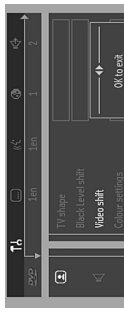
- **Black level shift (NTSC only)**

Select ON for adapting the colour dynamics to obtain richer contrasts.



- **Video shift**

The factory centres the video on your screen. Use this setting to personalize the position of the picture on your TV by scrolling it to the left or right.



- **Colour settings (DVD622 only)**

You can select one of five predefined sets of colour settings and one set (Personal) which you can define yourself.



- **Personal colour (DVD622 only)**

Allows you to fine-tune the selected colour settings saturation, brightness and contrast.

Personal Preferences

You can set your own personal preferences on the player:

General operation:

- Press SYSTEM MENU on the remote control.
- Select **PR** in the menu bar:
- The Personal Preferences menu appears.
- Use the **◀ ▶ ▲ ▼** keys to toggle through the menus, submenus and submenu options.
- When a menu item is selected, the cursor keys (on the remote control) to operate the item are displayed next to the item.
- Press OK to confirm and return to the main menu.
- The following items can be adapted:

Language

Select the required Menu, Audio and Subtitle language. See 'Initial Setup'.

Audio language and Subtitle language can also be adapted via the Menu bar on the screen.

Features

- **Access Control**

Access Control contains the following features:

Child Lock - When Child Lock is set to ON, a 4-digit code needs to be entered in order to playback discs.

Parental control - Allows the conditional presentation of DVDs containing Parental Control information (see 'Access Control').

- **Status Window**

Displays the current status of the player and is displayed with the menu bar. When disc playback is stopped, it is displayed with the 'Temporary Feedback Field' in the default screen. See 'On-Screen Display' information.

Factory setting is ON. Select OFF to suppress display of the Status Window.



- **Bit Rate Indicator**

When activated, the bit rate for video, audio as well as total bit rate is displayed. This is only applicable during playback of DVD and SVCD discs.



- **Help text**

When set to ON, help text describes the icons selected. Select OFF if you no longer require the help text.

Operation

Loading Discs

- 1 Press OPEN/CLOSE on the front of the player to open disc tray.
- 2 Load your chosen disc in the tray, label side up.
- 3 Press OPEN/CLOSE again, to close the tray.
→ REC II appears in the status window and on the player display, and playback starts automatically.

Note:

- If 'Child Lock' is set to ON and the disc inserted is not authorised, the 4-digit code must be entered and/or the disc must be authorised (see 'Access Control').

Playing a DVD-video and Video CD disc



Playing a disc

- After inserting the disc, playback starts automatically and the status window of the player display shows the type of disc loaded, as well as disc's information and playing time.
- The disc may invite you to select an item from a menu. If the selections are numbered, press the appropriate numerical key; if not, use the ▲▼◀▶ keys to highlight your selection, then press OK.
- The currently playing title and chapter number are displayed.
- Playback may stop at the end of the Title, and then may return to the DVD menu. To go on to the next title, press ►.
- To stop playback, press ■.
- The default screen will appear, giving information about the current status.
- You can resume playback from the point at which you stopped playback. Press ► when you see the Resume icon on the screen, press ► again.
- The RESUME feature applies not only to the disc in the player, but also to the last four discs you have played. Simply reload the disc and press RESUME on the remote control or, press ► when you see the Resume icon ► on the screen, then press ► again.

Note:

- DVDs may have a region code. Your player will not play discs that have a region code different from the region code of your player.

General features

Note:

- Unless stated, all operations described are based on remote control operation. A number of operations can also be carried out via the menu bar on the screen.

Moving to another title/chapter

When a disc has more than one title or chapter, you can move to another title/chapter as follows:

- Press **SYSTEM MENU**, then select **II** or **III** in the menu bar.
- Press ▲ or ▼ to select a title/chapter.

- **Note:**
– If the number has more than one digit, press the keys in rapid succession.

Slow Motion

- Select **II** (SLOW MOTION) in the menu bar.
- Use the ▼ keys to enter the SLOW MOTION menu.
- The player will now go into PAUSE mode.
- Use the cursor keys ◀▶ to select the required speed: -1/-1/2, -1/4 or -1/8 (backward), or +1/8, +1/4, +1/2 or +1 (forward).
- Select 1 to play the disc at normal speed again.
- If **III** is pressed, the speed will be set to zero (PAUSE).
- To exit slow motion mode, press ► and ►.

Still Picture and Frame-by-frame playback

- Select **II** (STEP) in the menu bar.
- Use the ▼ key to enter the picture by picture menu.
- The player will now go into PAUSE mode.
- Use the cursor keys ◀▶ to select the previous or next picture frame.
- To exit STEP mode, press ► or ►.
- You can also step forward by pressing **II** repeatedly on the remote control.

Scan

- Scanning plays the first 10 seconds of each chapter/index on the disc.
- Press **SCAN**.
- To continue playback at your chosen track, press **SCAN** again or press ►.

Search

- Select **II** (FAST MOTION) in the menu bar.
- Use the ▼ keys to enter the FAST MOTION menu.
- Use the ◀▶ keys to select the required speed: -32, -8 or -4 (backward), or +4, +8, +32 (forward).
- Select 1 to play the disc at normal speed again.
- To exit FAST MOTION mode, press ► or ►.
- To search forward or backward through different speeds, you can also hold down ◀◀◀ or ▶▶▶.

Repeat



DVD-Video Discs - Repeat chapter/ title/disc

- To repeat the currently playing chapter, press REPEAT.
- → REPEAT **CHPT** appears on the player display.
- To repeat the title currently playing, press REPEAT a second time.
- → REPEAT **TITL** appears on the display.
- To repeat the entire disc, press REPEAT a third time.
- → REPEAT appears on the display.
- To exit Repeat mode, press REPEAT a fourth time.

Video CDs - Repeat track/disc

- To repeat the track currently playing, press REPEAT.
- → REPEAT **TRK** appears on the player display.
- To repeat the entire disc, press REPEAT a second time.
- → REPEAT appears on display and screen.
- To exit Repeat mode, press REPEAT a third time.

Repeat A-B

- To repeat a sequence in a title:
Press REPEAT A-B at your chosen starting point.
- → A- appears briefly on the screen.
- Press REPEAT A-B again at your chosen end point.
- → REPEAT **A-B** appears briefly on the display, and the repeat sequence begins. (REPEAT **A-B** is displayed on the front panel of the player)
- To exit the sequence, press REPEAT A-B.

Shuffle



DVD-Video discs

- This shuffles the playing order of chapters within a title, if the title has more than one chapter.
- Press SHUFFLE during playback.
- → SHUFFLE appears on the screen for about 2 seconds.
- To return to normal playback, press SHUFFLE again.
- **Video CDs**
- Press SHUFFLE during playback.
- → SHUFFLE appears on the screen for about 2 seconds.
- To return to normal playback, press SHUFFLE again.

Time search

The Time Search function allows you to start playing at any chosen time on the disc.

- Select **II** (TIME SEARCH) in the menu bar.
- Press ▼.
- The player will now go into PAUSE mode.
- A time edit box appears on the screen, showing the elapsed playing time of the current disc.
- Use the digit keys to enter the required start time. Enter hours, minutes and seconds from left to right in the box.
- Each time an item has been entered, the next item will be highlighted.
- Press OK to confirm the start time.
- The time edit box will disappear and playback starts from the selected time position on the disc.



Zoom

The Zoom function allows you to enlarge the video image and to pan through the enlarged image.

- Select **II** (ZOOM).
- Press ▲▼ to activate the ZOOM function and select the required zoom factor: 1.33 or 2 or 4.
- The player will go into Pause mode.
- The selected zoom factor appears below the Zoom icon in the menu bar and 'Press OK to pan' appears below the menu bar.
- The picture will change accordingly.
- Press OK to confirm the selection.
- The panning icons appear on the screen.
- Use the ◀▶▲▼ keys to pan across the screen.
- When OK is pressed only the zoomed picture will be shown on the screen.
- To exit ZOOM mode:
– Press ► to resume playback.



FTS-Video

- The FTS-Video function allows you to store your favourite titles and chapters (DVD) and favourite tracks and indexes (VCD) for a particular disc in the player memory.
- FTS programme can contain 20 items (titles, chapters).
- An programmed FTS will be placed on top of the list when playback is activated. When the list is full, a new programme will replace the last programme on the list.
- The programme can be selected and played at any time.

Storing a FTS-Video Programme

- In STOP mode, select **VIDEO FTS** in the menu bar.
- Press **▼** to open the menu.
- The **VIDEO FTS** menu appears.
- Press **▶** or **◀** or FTS to select ON or OFF.

Storing titles/tracks

- Press **▼** to select **TITLES**.
- Use **▶** and **◀** to select the required title.
- Press **OK** if you wish to store the entire title.
- The title number will be added to the list of selections.



Storing chapters/indexes

- Press **▼** on the selected title number.
- The title number will be marked and the highlight moves to the first available chapter number for this title.
- Use **▶** and **◀** to select the required chapter number.
- Press **OK** to confirm the selection.
- The title/chapter selection will be added to the list of selections.
- Press SYSTEM MENU to exit the **VIDEO FTS** menu.

Erasing a FTS-Video Programme

- In STOP mode, select **VIDEO FTS** in the menu bar.
- Use **▼** to select **PROGRAM**.
- Use **▶** and **◀** to select the required selection number.
- Press **OK** to erase the selection.
- Press SYSTEM MENU to exit.

If you wish to erase all selections:

- In STOP mode, select **VIDEO FTS** in the menu bar.
- Use **▼** to select **CLEAR ALL**.
- Press **OK**.
- All selections will now be erased.
- Press SYSTEM MENU to exit.

Special DVD features

Checking the contents of DVD-Video discs: Menus

- DVDs may contain menus to navigate the disc and access special features. To use the menu, press the appropriate numerical key or use the **▼**, **▶**, **◀** keys to highlight your selection, then press **OK**.

Title/Disc menu

- Press **DISC MENU**.
- If the current title has a menu, the menu will appear on the screen otherwise, the disc menu will be displayed.
- The menu can list camera angles, spoken language and subtitle options, and chapters for the title.
- To remove the title menu, press **DISC MENU** again.

Camera Angle

- If the disc contains sequences recorded from different camera angles, the angle icon appears, showing the number of available angles and the angle being shown currently. You can then change the camera angle if you wish.
- Use the **▲**, **▼** keys to select the required angle. The angle icon remains displayed until multiple angles are no longer available.



Changing the audio language

- Select (AUDIO) in the menu bar.
- Press or **▲**, **▼** repeatedly to see the different languages.



Subtitles

- Select (SUBTITLE) in the menu bar.
- Press or **▲**, **▼** repeatedly to see the different subtitles.



Special VCD & SVCD features

Playback Control (PBC)

- Load a Video CD with PBC and press **▶**.
- Go through the menu with the keys indicated on the TV screen until your chosen passage starts to playback. If a PBC menu consists of a list of titles, you can select a title directly.
- Enter your choice with the numerical keys (0-9).
- Press **RETURN** to go back to the previous menu.
- You may also set to **PBC OFF** under Personal Preferences.

Playing an audio CD

- After loading the disc, playback starts automatically.
- If the TV is on, the Audio CD screen appears.
- The number of tracks and the total playing time will be shown on the screen.
- During playback, the current track number and its elapsed playing time will be shown on the screen and on the player display.
- Playback will stop at the end of the disc.
- To stop playback at any other time, press **■**.



Pause

- Press **II** during playback.
- To return to playback, press **▶**.



Search

- To search forward or backward through the disc at four times normal speed, hold down **II** or **II** for about one second during playback.
- Search begins, and sound is partially muted.
- To step up to eight times the normal speed, press **II** or **II** again.
- Search goes to eight times the speed, and the sound is muted.
- To return to four times the normal speed, press **II** or **II** again.
- If the TV is on, search speed and direction are indicated on the screen each time **II** or **II** is pressed.
- To end the search, press **▶** to resume playback or **■** to stop.



Moving to another track

- Press **II** or **II** briefly during playback to go to the next or to return to the beginning of the current track.
- Press **II** twice briefly to step back to the previous track.
- To go directly to any track, enter the track number using the numerical keys (0-9).

Shuffle

- Press **SHUFFLE** during playback.
- The order of the tracks is changed.
- To return to normal playback, press **SHUFFLE** again.



Repeat track/disc

- To repeat the track currently playing, press **REPEAT**.
- **REPEAT TRK** appears on the display.
- To repeat the entire disc, press **REPEAT** a second time.
- **REPEAT** appears on the display.
- To exit Repeat mode, press **REPEAT** a third time.



Repeat A-B

- To repeat a sequence:
- Press **REPEAT A-B** at your chosen starting point:
- **A** appears on the player display.
- Press **REPEAT A-B** again at your chosen end point:
- **A-B** appears on the display, and the sequence begins to playback repeatedly.
- To exit the sequence, press **REPEAT A-B** again.



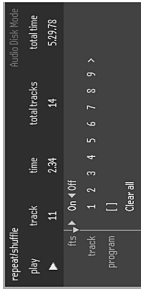
Scan

- Scanning plays the first 10 seconds of each track on the disc.
- Press **SCAN**.
- To continue playback at your chosen track, press **SCAN** again or press **▶**.



FTS Programme

- FTS Programme allows you to store your favourite tracks for a particular disc in the player memory
- Each FTS Programme can contain 20 tracks.



Storing an FTS Programme

- 1 Load a disc and stop playback.
- 2 Use **▼** to go to the list of available tracks.
- 3 Use **▶** or **◀** to select tracks from the list.
To go directly to any track, enter the track number using the numerical keys (0-9).
- 4 Store each track by pressing **OK**.
→ The track numbers will be added to the list.
→ The number of tracks and the playing time of the programme will be shown on the screen and the player display.

When your FTS Programme is complete, press **▶** to start playback or **▲** to go back to Stop mode. In either case, the FTS Programme will be automatically memorized.

Switching FTS ON/OFF

- 1 Use **▲ ▼** to move to select desired tracks.
- 2 Use **▶** or **◀** to select either ON or OFF.

Erasing a track from an FTS Programme

- 1 Use **▼** to go to the list of selected tracks.
- 2 Use **▶** and **◀** to select the track number you wish to erase. Press **OK**.
- 3 → The track number will be erased from the list of selected tracks.

Erasing the complete programme

- 1 Use **▼** to select **CLEAR ALL**, then press **OK**.
→ The complete FTS Programme for the disc will be erased.

MP3 Disc Features (DVD622 only)

Downloading MP3 files from the Internet or ripping songs from your own legal discs, is a delicate process.

Sound Quality	Bit Rate	Approximate MP3 CD time	Comment
ATX (radio)	32 kbps	45:11	Not recommended for playback
Normal	48 kbps	30:11	Not recommended for playback
Normal CD	64 kbps	15:11	Not recommended for playback
CD (low)	128 kbps	10:11	Best sound quality
CD (high)	160 kbps	8:11	Best sound quality
CDP	220 kbps	3:11	Best sound quality

As a result, you may experience an occasional "skip" while listening to your MP3 Disc's. This is considered to be normal.

Additional note for MP3 Disc Playback:

- In compliance with the SD/Hi, digital-out is muted while playing MP3 discs.
- It supports sampling frequencies of 48 kHz, 44.1 kHz (preferred) and 32 kHz.
- Due to the recording nature of DAM discs (these are disc's containing both Digital Audio and MP3 encoded music), it will only play the Digital Audio music.

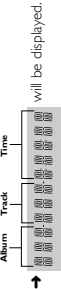
Note:

- Only the first session of multisection discs is supported

Album/Title

This feature allows you to view and select the next or previous MP3 disc Album/Title.

- 1 Press **▲ ▼** to scroll through the previous or next Album.
- 2 Press **◀ ▶** to scroll through the previous or next Track.



- 3 You can also select the desired album/track number directly from the numerical key pad on the remote control.

Note:

- In STOP mode, numbers are used for ALBUM selection.
- In PLAY mode, numbers are used for TRACK selection.

- Only the following modes are possible for MP3 discs:
 - STOP / PLAY / PAUSE
 - SKIP NEXT / PREVIOUS
 - REPEAT (ALBUM / TRACK / DISC)

MP3 Discs - Album/Track/Disc

- To repeat track, press **REPEAT**.
→ **REPEAT TRK** appears on the display.
- To repeat album, press **REPEAT** a second time.
→ **REPEAT ALB** appears on the player display.
- To repeat disc, press **REPEAT** a third time.
→ **REPEAT DISC** appears on the player display.

Access Control

Access Control; Child Lock (DVD-Video and Video CD)

Activating/deactivating the child lock

- 1 When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the **▲ ▼** keys.
- 2 Enter a 4-digit code of your own choice.
- 3 Enter the code a second time.
- 4 Move to "CHILD LOCK" using the **▲ ▼** keys.
- 5 Select **LOCK/UNLOCK** using the **▶** key.
- 6 Select **LOCK** using the **▲ ▼** keys.
- 7 Press **OK** or **◀** to confirm, then press **◀** again to exit the menu.
→ Now unauthorized discs will not be played unless the 4-digit code is entered.
- 8 Select **UNLOCK** to deactivate the **CHILD LOCK**.

Note: Confirmation of the 4-digit code is necessary when:

- The code is entered for the very first time (see above).
- The code is changed (see "Changing the 4-digit code").
- The code is cancelled (see "Changing the 4-digit code").



Authorizing discs

- Insert the disc. See 'Loading disc'.
→ The 'child protect' dialog will appear.
You will be asked to enter your secret code for 'Playback Once' or 'Playback Always'. If you select 'Playback Once', the disc can be played as long as it is in the player and the player is ON. If you select 'Playback Always', the disc will become child safe (authorized) and can always be played, even if the Child Lock is set to ON.

Notes:

- The player memory maintains a list of 120 authorized ('Child safe') disc titles. A disc will be placed in the list when 'Playback Always' is selected in the 'child protect' dialog.
- Each time a 'child safe' disc is played, it will be placed on top of the list. When the list is full and a new disc is added, the last disc in the list will be removed from the list.
- Double sided DVDs may have a different ID for each side. In order to make the disc 'child safe', each side has to be authorized.
- Multi-volume VCDs may have a different ID for each volume. In order to make the complete set 'child safe', each volume has to be authorized.



Deauthorizing discs

- Insert the disc. See 'Loading disc'.
- Playback starts automatically.
- Press **■** while **Ⓢ** is visible.
- The **Ⓢ** will appear and the disc is now deauthorized.

Access control; Parental Control (DVD-Video only)

Movies on DVDs may contain scenes not suitable for children. Therefore, disc may contain Parental Control information which applies to the complete disc or to certain scenes on the disc. These scenes are rated from 1 to 8, and alternative, more suitable scenes are available on the disc. Ratings are country dependent. The 'Parental Control' feature allows you to prevent discs from being played by your children or to have certain discs played with alternative scenes.



Before Requesting Service

If it appears that the DVD-Video player is faulty, first consult this checklist. It may be that something has been overlooked. Under no circumstances attempt to repair the system yourself; this will invalidate the warranty.

Look for the specific symptom(s). Then perform only the actions listed to remedy the specific symptom(s).

Symptom	Remedy
No power	<ul style="list-style-type: none">Make sure the mains cord (AC Power) is properly connected.Check if there is power at the AC outlet by plugging in another appliance.
No picture	<ul style="list-style-type: none">Check if the TV is switched on.Check the video connection.
Distorted picture	<ul style="list-style-type: none">Check the disc for fingerprints and clean the disc with a soft cloth, wiping from the centre to the edge in a straight line.Sometimes a small amount of picture distortion may appear. This is not a malfunction.
Completely distorted picture or no colour with player menu.	<ul style="list-style-type: none">If the picture is distorted completely or if the picture rolls vertically, make sure the NTSC/PAL setting at the DVD player matches the video signal of your television.If your TV video signal is NTSC, select the NTSC setting at the DVD player.If your video signal is PAL, select the PAL setting - see NTSC/PAL SETTINGS.
Distorted or Black/White picture with DVD or Video CD.	<ul style="list-style-type: none">The disc format does not match your TV's video signal (PAL/NTSC) - see NTSC/PAL Conversion.
No sound	<ul style="list-style-type: none">Check audio connections.If you are using a HiFi amplifier, try another sound source.
Distorted sound from HiFi amplifier.	<ul style="list-style-type: none">Check to make sure that no audio connections are made to the amplifier phono input.
No audio at digital output.	<ul style="list-style-type: none">Check the digital connections.Check the settings menu to make sure the digital output is set to ALL or PCM.Check if the audio format of the selected audio language matches your receiver capabilities.Not applicable for MP3
Disc can't be played.	<ul style="list-style-type: none">Ensure the disc label is facing up.Clean the disc.Check if the disc is defective by trying another disc.Check to see if the disc is defective, badly scratched or warped (not flat)
No return to start-up screen when disc is removed.	<ul style="list-style-type: none">Reset by switching the player off, then on again.Check to see if the programme requires another disc to be loaded.
The player does not respond to the remote control.	<ul style="list-style-type: none">Aim the remote control directly at the sensor on the front of the player.Remove any obstacles between the player and the remote control.Inspect or replace the batteries in the remote control.
Buttons do not work.	<ul style="list-style-type: none">In order to completely reset the player, unplug the AC cord from the AC outlet. (Please ensure that the set is not in Initial Setup mode)
Player does not respond to some operating commands during playback.	<ul style="list-style-type: none">Operations may not be permitted by the disc. Refer to the instructions of the disc.
DVD-Video player cannot read CDs/DVDs	<ul style="list-style-type: none">Use a commonly available cleaning CD/DVD to clean the lens before sending the DVD-Video player for repair.

Activating/Deactivating Parental Control

- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the **▲▼** keys.
- Enter your 4-digit code. If necessary, enter the code a second time.
- Move to **Parental Control** using the **▲▼** keys.
- Move to **VALUE ADJUSTMENT** (1-8) using the **►** key.
- Then use the **▲▼** keys or the numerical keys on the remote control to select a rating from 1 to 8 for the disc inserted.

Rating 0 (displayed as “-”):

Parental Control is not activated. The Disc will be played in full.

Ratings 1 to 8:

The disc contains scenes not suitable for children. If you set a rating for the player, all scenes with the same rating or lower will be played. Higher rated scenes will not be played unless an alternative is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback will stop and the 4-digit code has to be entered.

- Press **OK** or **◄** to confirm, then press **◄** again to exit the menu.

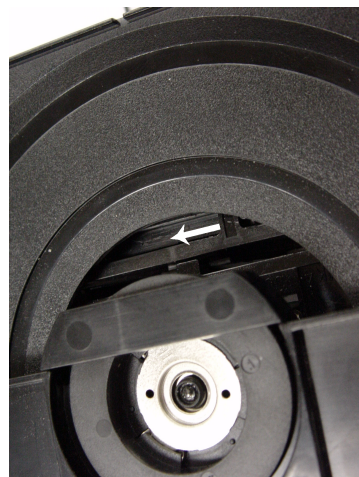


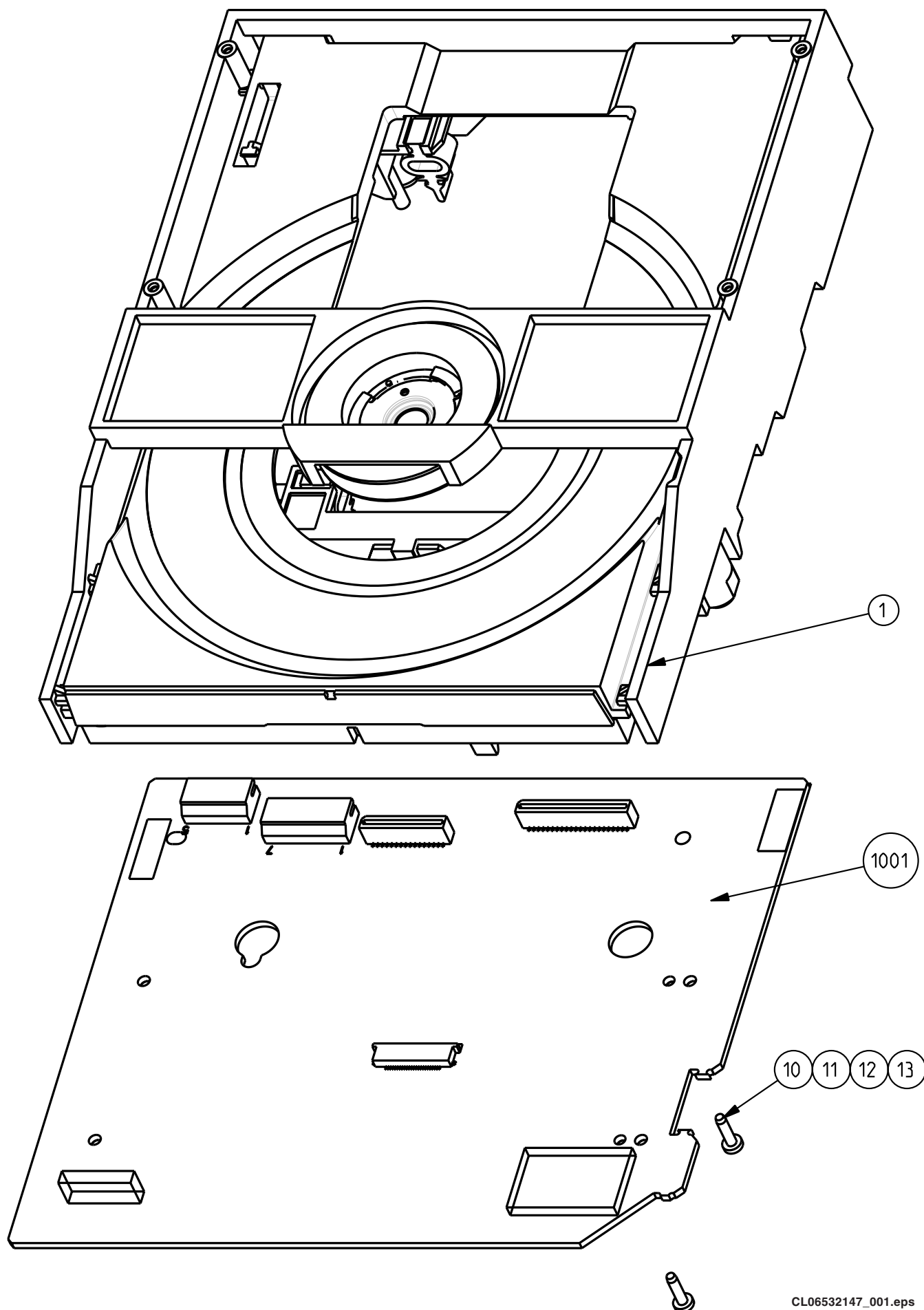
Country

- When disc playback is stopped, select **ACCESS CONTROL** in the features menu using the **▲▼** keys.
- Enter the 4-digit code.
- Move to **CHANGE COUNTRY** using the **▼** key.
- Press the **►** key.
- Select a country using **▲▼**.
- Press **OK** or **◄** to confirm, then press **◄** again to exit the menu.

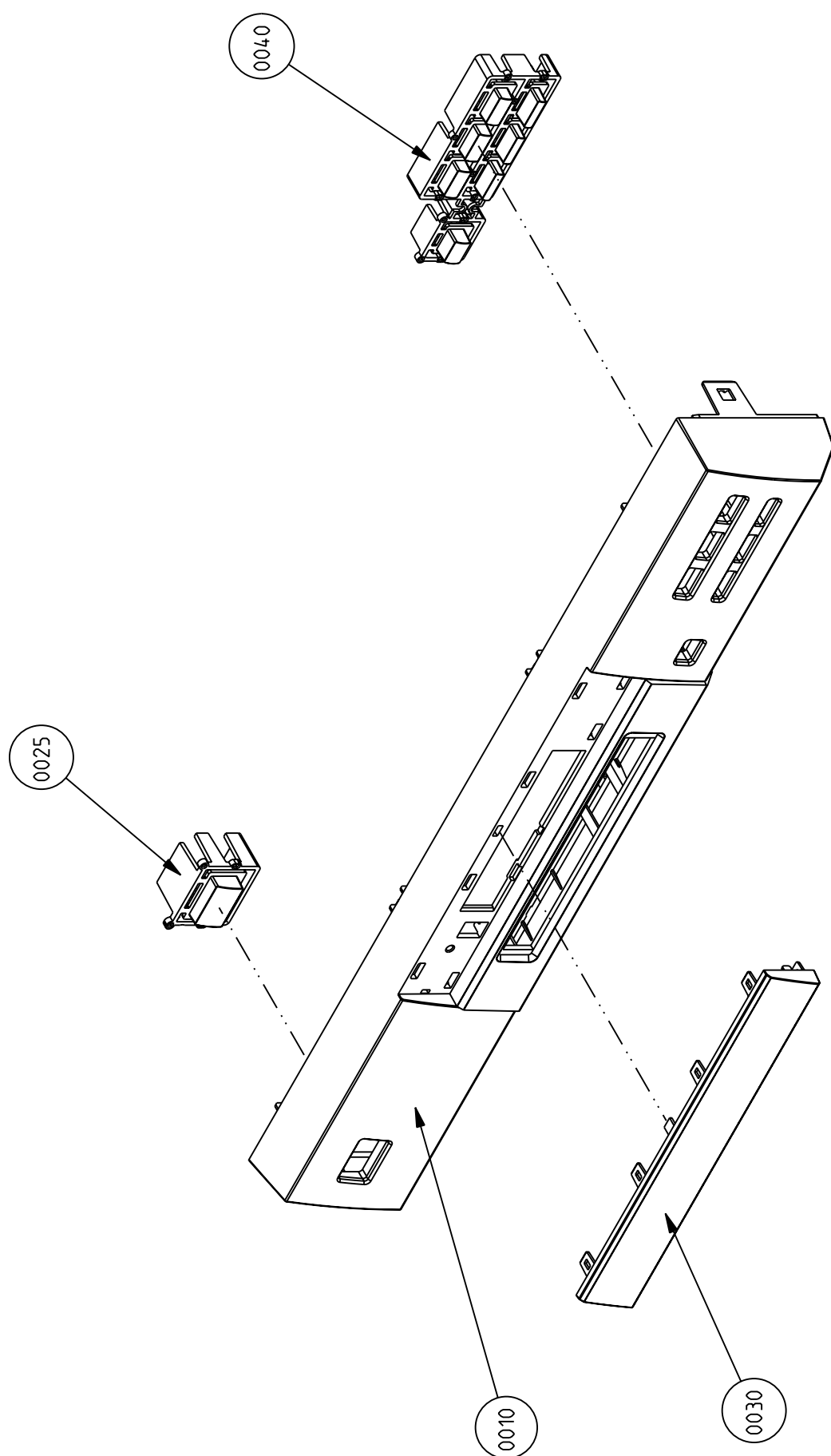
4.1 Dismantling instructions

4.1 Dismantling instructions

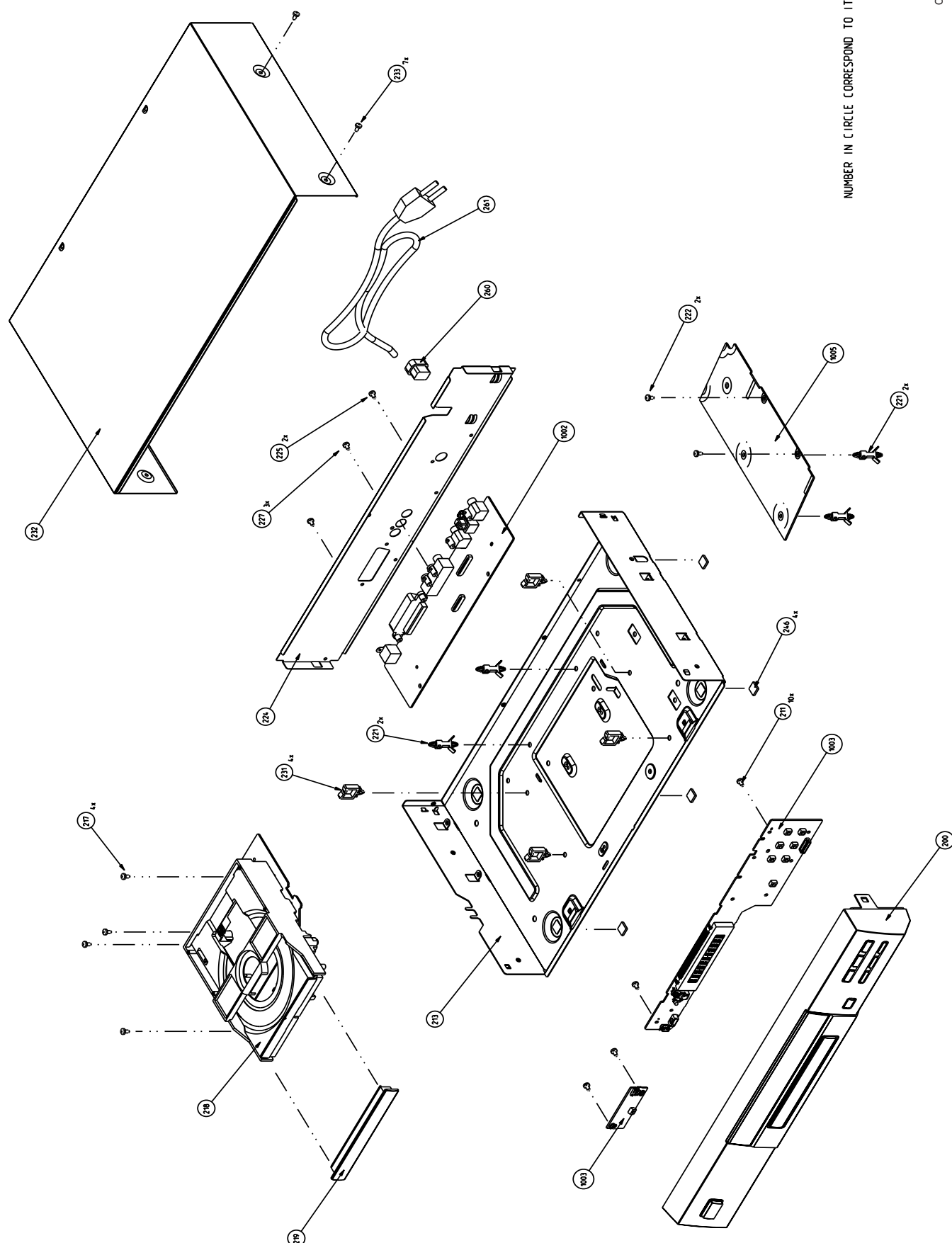
CL 16532007_056.eps
120201



4.2 Exploded views



NUMBER IN CIRCLE CORRESPOND TO ITEM NUMBER IN P/L



NUMBER IN CIRCLE CORRESPOND TO ITEM NUMBER IN P/L

4.3 Service position

See figure 4-1 for the service position

1. Remove the cables from the cable tie housing.
2. Remove 4 screws that mount the DVD module to the bottom frame.
3. Move the DVD module backward slightly and flip the module over, so that the component side of the board faces upwards, and the module is in the service position.

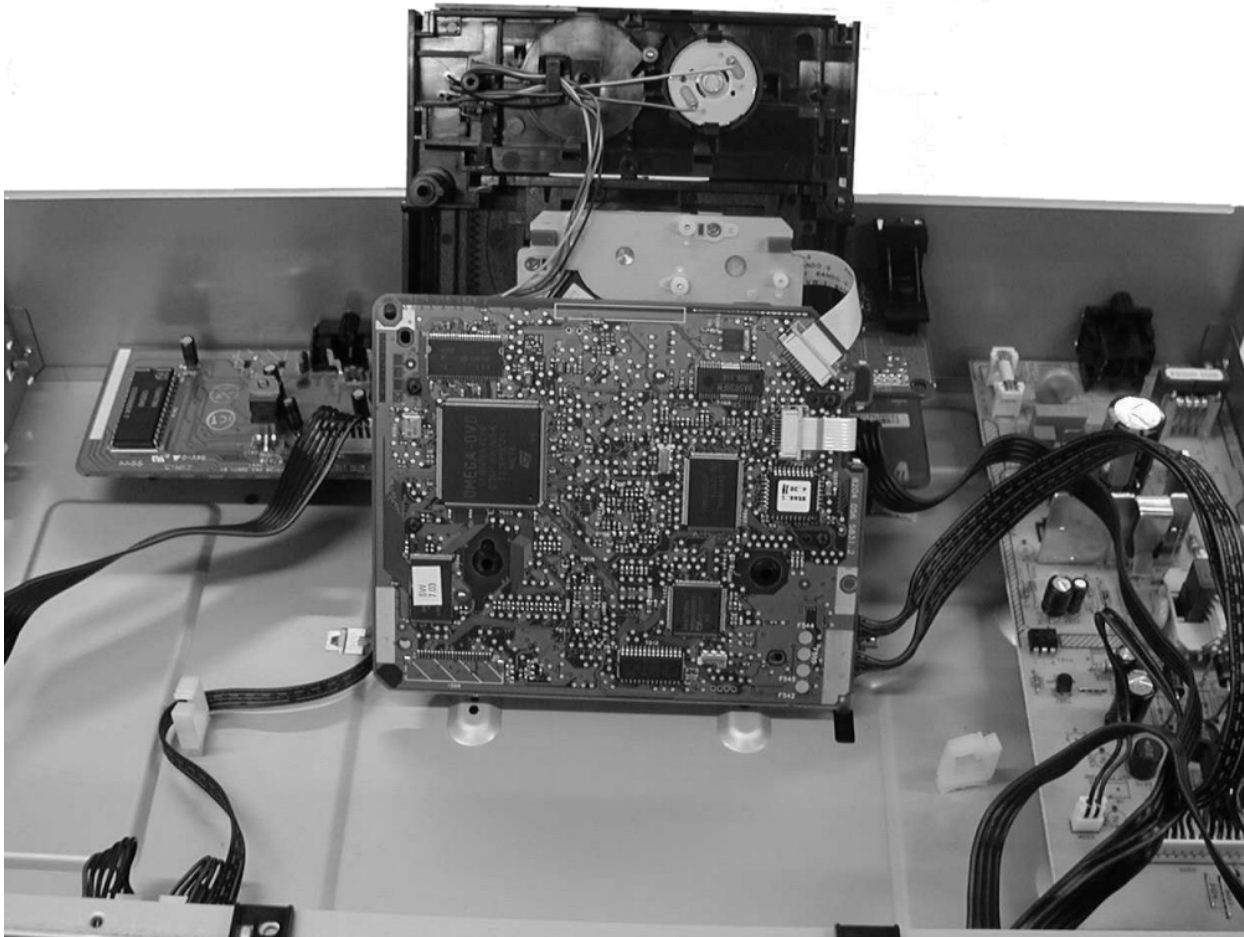


Figure 4-1

5. Diagnostic software descriptions and troubleshooting

5.1 Dealerscript

5.1.2 Contents of Dealer Script

5.1.1 Purpose of Dealer Script

The dealer script can give a diagnosis on a standalone DVD player; no other equipment is needed to perform a number of hardware tests to check if the DVD player is faulty. The diagnosis is simply a "error" or "pass" message; no indication is given of faulty hardware modules. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

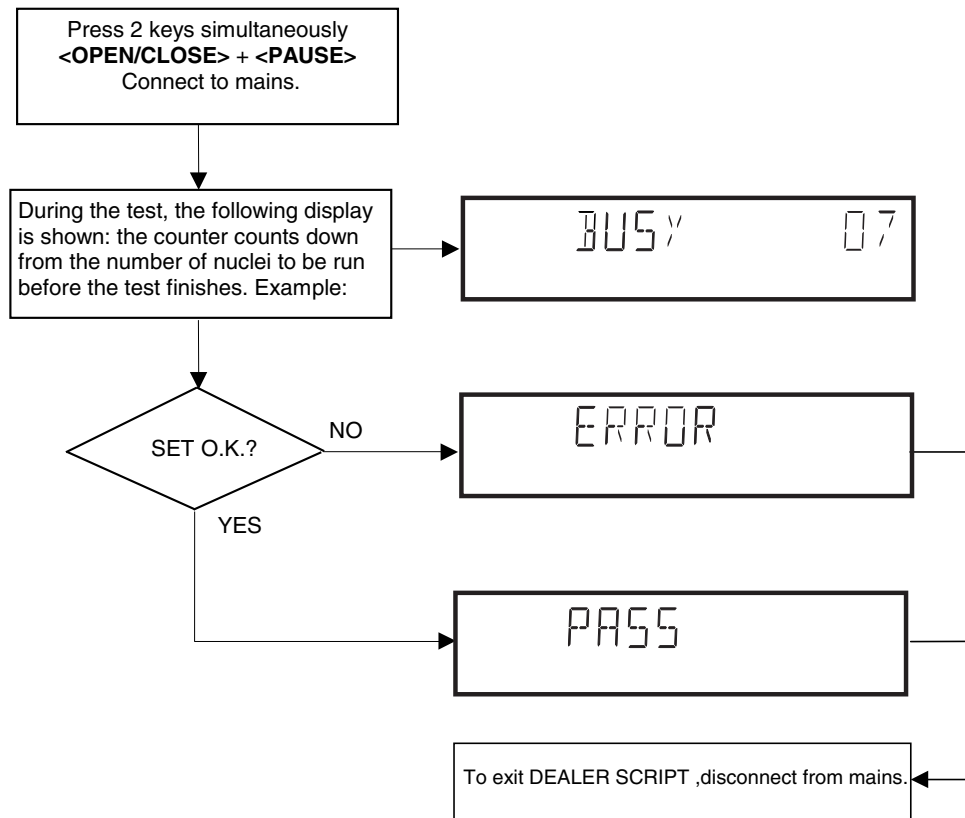
The dealer script executes all diagnostic nuclei that do not need any user interaction and are meaningful on a standalone DVD player.

The nuclei called in the dealer script are the following (the number after each nucleus name corresponds with the number being on the local display when the nucleus is executed during the dealer script):

Nucleus		Description
VideoColSetupComm	7	Checks the I2C interface with the RGB video processor on the Audio/Video board (only for DVD players with RGB video processor).
PapChksFl	6	Calculate and verify checksum of FLASH memory.
PapI2cDisp	5	Checks the I2C interface with the slave processor on the display PCB.
PapS2bEcho	4	Checks the I2C interface to the basic engine.
PapI2cNvram	3	Checks the I2C interface with the NVRAM.
PapNvramWrR	2	Pattern test of all locations in the NVRAM
CompSdramWrR	1	Pattern test of all locations in the SDRAM(s).

CL06532096_001.eps
050700

Figure 5-1



CL 96532065_004.eps
120799

Figure 5-2

5.2 PLAYER SCRIPT

5.2.1 Purpose of Player Script

The Player script will give the opportunity to perform a test that will determine which of the DVD player's modules are faulty, to read the error log and error bits and to perform an endurance loop test. To successfully perform the tests, the DVD player must be connected to a tv set to check the output of a number of nuclei. For DVDv2b a multi-channel amplifier, a set of 6 boxes and an external video source are necessary to test. To be able to check results of certain nuclei, the player script expects some interaction of the user (i.e. to approve a test picture or a test sound). Some nuclei (e.g. nuclei that test functionality of the Basic Engine module) require that the DVD player itself is opened, to enable the user to observe moving parts and approve their movement visually. Only tests within the scope of the diagnostic software will be executed hence only faults within this scope can be detected.

5.2.2 Contents of Player Script

The player script contains all nuclei that are useful on a DVD player that is connected to a tv-set and help to determine which module of the DVD player is faulty, as well as to read out the contents of the error logs.

5.2.3 Structure of Player Script

The player script consists of a set of nuclei testing the three hardware modules in the DVD player: the Display PWB, the Digital PWB and the Basic Engine.

Nuclei run by the player test need some user interaction; in the next paragraph this interaction is described. The player test is done in two phases:

1. Interactive tests: this part of the player test depends strongly on user interaction and input to determine nucleus results and to progress through the full test. Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player.
2. The loop test will loop through the list of nuclei indefinitely, till the NEXT key is pressed. The list of nuclei is as follows:
 - VideoColSetupComm
 - VideoScartSwComm
 - PapChksFlash
 - PapI2cNvram
 - CompSdramWrR
 - PapS2bEcho
 - PapI2cDisp

For DSW version 1.6 and above, the DSW version number will be displayed on the local display. Press NEXT to continue to the display test.

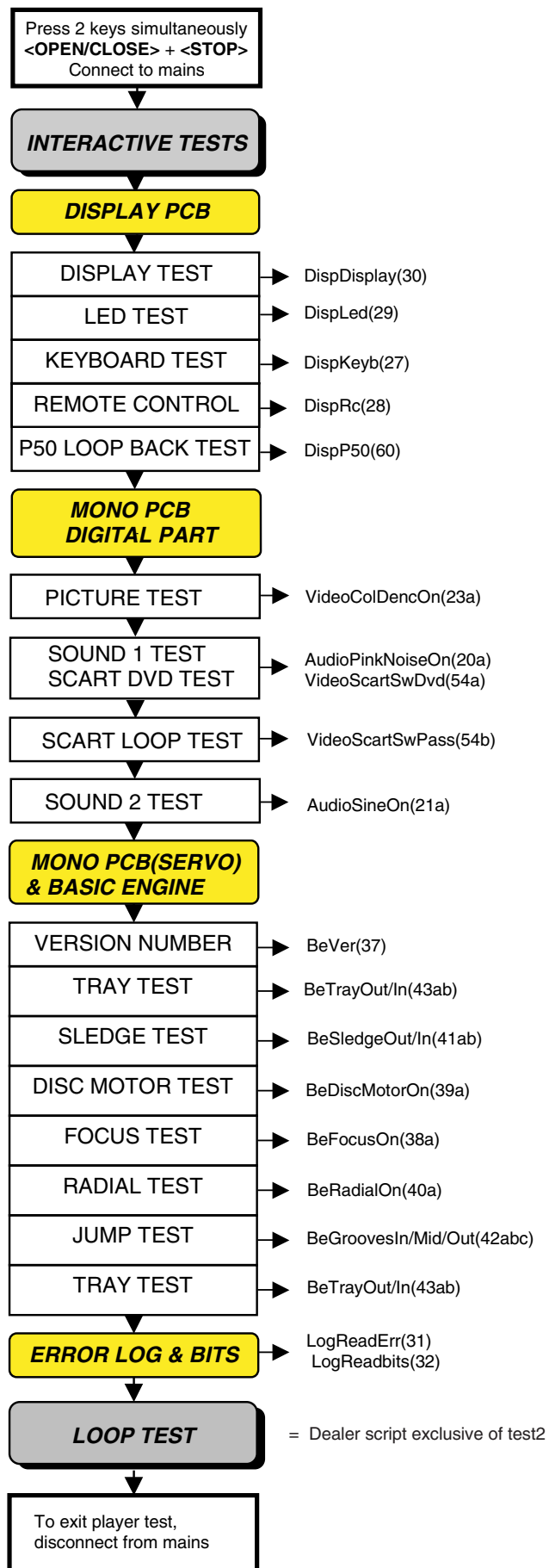
The display should look like the following:



CL 16532007_002.eps
01/02/01

Figure 5-3

5.2.4 Survey



CL 16532007_003.eps
300101

Figure 5-4

5.3 DISPLAY PCB

5.3.1 DISPLAY TEST

The display test is performed by nucleus DispDisplay. By putting a series of test patterns on the local display, the local display is tested. To step through all different patterns, the user must either press PLAY (pattern is ok) or PAUSE (pattern was incorrect) to proceed to the next pattern. The display of patterns is continued in a cyclic manner until the user presses NEXT. If the user presses NEXT before all display patterns are tested, the DispDisplay nucleus will return TRUE (display test successful).

5.3.2 LED TEST

The LED(s) on the DVD player is (are) tested by nucleus DispLed. The user must check if the LED(s) is (are) lighted; if it is, press PLAY, if it is not, press PAUSE. By pressing NEXT the script will proceed to the next test. If the user presses NEXT before PLAY or PAUSE, the DispLed nucleus will return TRUE (LED test successful).

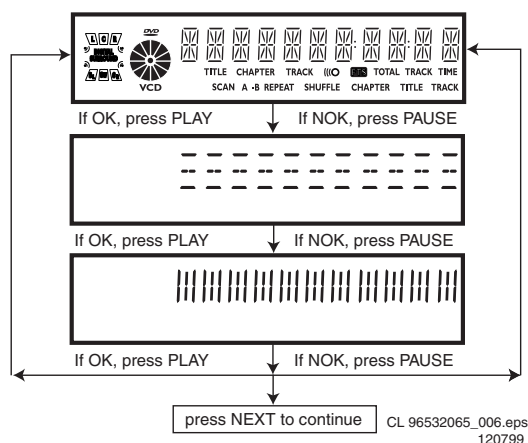


Figure 5-5

5.3.3 KEYBOARD TEST

The keyboard of the DVD player is tested by nucleus DispKeyb. The user is expected to press all keys on the local keyboard once. The code of the key pressed is shown on the local display (1 hexadecimal digit) immediately followed by a (hexadecimal) number indicating how many times that key has been pressed. Example of the local display during this test:

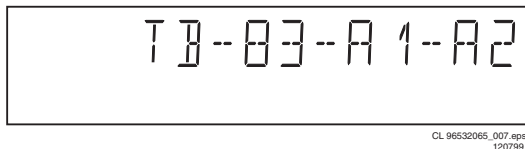


Figure 5-6

The key-codes displayed on the local display will scroll from right to left when the display gets full, the text "tb-" will remain on display.

key id.	key
0	PLAY
1	NEXT
2	PREVIOUS
3	PAUSE
4	STOP
5	OPEN/CLOSE
6	3D-SURROUND
7	KEY- (Mic Control)
8	Once More (Mic Control)
9	KEY+ (Mic Control)
A	STAND BY

CL16532007_007.eps
300101

Figure 5-7

If any keys are detected more than once (due to hardware error), the key-code is displayed twice (or more), with the second digit increased by 1. If the user does not press all keys minimally once (in any order), the DispKeys nucleus will return FALSE and cause an error in the overall result of the player script. The test will also pass if all buttons, except the microphone key buttons, are pressed. The user can leave the keyboard test by pressing the NEXT key on the local display of the DVD player for at least one full second. The result of the keyboard test is shown on local display as follows:

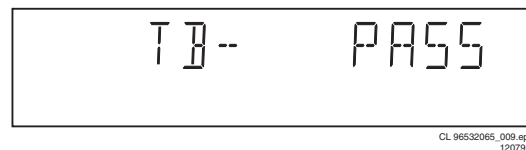


Figure 5-8

Or

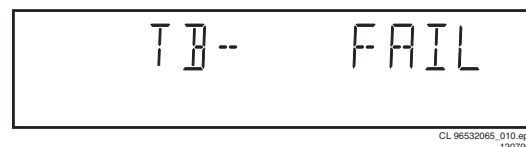


Figure 5-9

Pressing NEXT on the local keyboard again will proceed to the next text.

5.3.4 REMOTE CONTROL TEST

The remote control of the DVD player is tested by nucleus DispRc. The user must press any key on the remote control just once. The codes of the key pressed will be shown on the local display in hexadecimal format. Example:

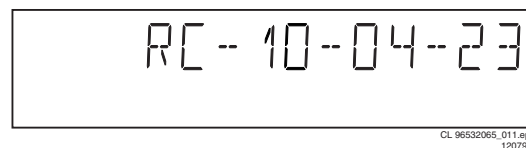


Figure 5-10

In this example 23 is the hexadecimal code of the pressed RC key. The user can leave the remote-control test by pressing NEXT on the local keyboard of the DVD player. The remote

control test is successful if a code was received before the user pressed the NEXT key; pressing the NEXT key before pressing a key on the remote control gives an error in the remote control test (note that the remote control test will also fail if a key on the remote control was pressed but no code was received). The remote control test does not check upon the contents of the received code, that is it will not be checked if the received code matches the key pressed. If desired, the user can manually check this code by using a code-table for the remote control key-codes.

C Key id	Hexadecimal code
STANDBY	0C
STOP	31
PLAY	2C
PLAY BACKWARD	2D
PAUSE	30
STEP FORWARD	F6
STEP BACKWARD	F5
FORWARD	28
FORWARD 4X	DF
FORWARD 8X	E0
BACKWARD	29
BACKWARD 4X	DE
BACKWARD 8X	DD
SLOW	22
SLOW 2	D9
SLOW BACKWARD	23
SLOW BACKWARD 2	DA
NEXT	20
PREVIOUS	21
CURSOR UP	58
CURSOR DOWN	59
CURSOR LEFT	5A
CURSOR RIGHT	5B
OK	5C
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
TOGGLE	C8
ANGLE	85
AUDIO	4E
SUBTITLES	4B
SUBTITLE ON/OFF	E3
ROOT MENU	54
TITLE MENU	71
MENU	D1
SETUP MENU	82
OSD ON/OFF	F
RETURN	83
RESUME	D7
SCAN	2A
SHUFFLE	1C
REPEAT	1D
A/B REPEAT	3B
TOGGLE SCART	43
OPEN/CLOSE	42
FTS	FB
KARAOKE	E4
OPTION	FA

CL06532096_003.eps
050700

Figure 5-11

After pressing NEXT, the result of the remote control test is displayed on the local display of the DVD player as follows:



Figure 5-12

Or

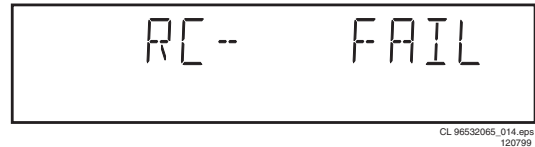


Figure 5-13

Pressing NEXT on the local keyboard again will proceed to the next test.

5.3.5 P50 LOOP-BACK TEST

For the P50 loop-back test, the user must first press a key to decide if the test is to be performed. The display will show the following message:



Figure 5-14

If the user presses PAUSE, the P50 test will be skipped. If the user presses PLAY, the P50 test is performed and the result is displayed as follows:

Test successful:

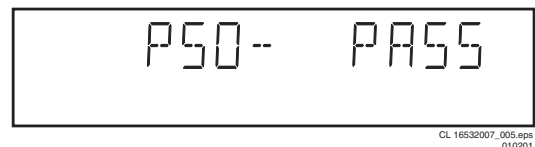


Figure 5-15

Test fails:

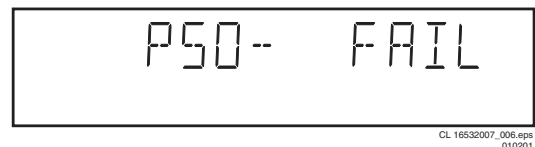


Figure 5-16

Press the NEXT key to continue to the next text

5.4 MONO PCB DIGITAL PART

5.4.1 PICTURE TEST

The picture test is performed by putting a predefined picture (colour bar) on the display (nucleus VideoColDencOn) and

asking the user for confirmation. The display will show the following message:



Figure 5-17

By pressing PLAY the user confirms the test, pressing PAUSE will indicate the picture was invisible or incorrect. Pressing NEXT will proceed to the next test

5.4.2 SOUND 1 & SCART DVD TEST

The first soundtest is performed by starting a pink noise sound that needs confirmation from the user (nucleus AudioPinkNoiseOn); the display will show the following message very shortly:



Figure 5-18

This sound will only be audible from version cut3.1 of Sti5505(item7503 on mono board) onwards. After starting up sound 1, SCART loop-trough will be simultaneously active during this test. SCART loop-trough will be measured with the aid of an external video source. When entering the SCART loop-trough, the local display indicates:

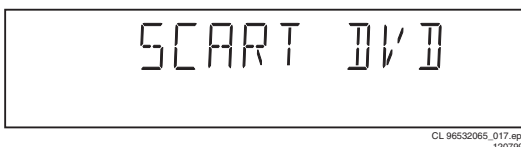


Figure 5-19

On the TV screen a colour bar (generated by nucleus VideoColDencOn) is visual and the internally generated pinknoise is audible. By pressing PLAY the user confirms the test, pressing PAUSE will indicate the sound was inaudible or incorrect. Pressing NEXT will proceed to the next test; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok). By pressing the NEXT button there will be switched over to the external source, this must become now visible on the TV screen (using the SCART). The local display indicates:

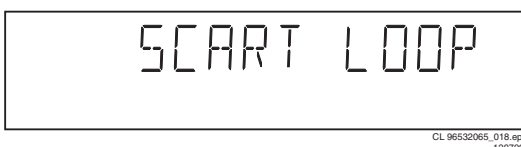


Figure 5-20

The internally generated colour bar is still available on the CVBS and Y/C outputs. And the pinknoise-signal is still available on the cinch audio outputs. By pressing the PREV button, the internal generated colour bar becomes visual again.

The test can be left by pressing the NEXT key for more than one second.

5.4.3 SOUND 2 TEST

The second soundtest is performed by producing a sine sound (nucleus AudioSineOn). The signal can be stopped by pressing the STOP-key. The display will show the following message:

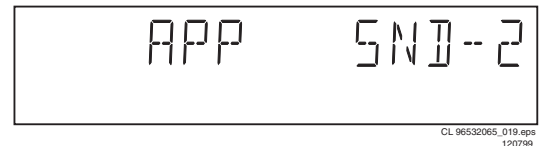


Figure 5-21

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong. Pressing NEXT will proceed to the next; if the user presses NEXT without pressing PLAY or PAUSE first, the result of this test will be TRUE (sound ok).

5.4.4 Colour setup test

The colour setup test is performed by putting the internally generated colour bar in different settings on the TV screen. The first colour bar will be displayed in setting 1. the display will show the following message:



Figure 5-22

By pressing the NEXT button, you can go to the second setting. The local display indicates:



Figure 5-23

By pressing the PREVIOUS button, the colour bar with the first setting becomes visual again.

By pressing PLAY the user confirms the test, pressing PAUSE will indicate that something went wrong.

The test can be left by pressing the NEXT key for more than one second; if the user presses NEXT without pressing PLAY or PAUSE first, the result of the test will be TRUE (colour set-up ok).

5.5 BASIC ENGINE

5.5.1 VERSION NUMBER

In the basic engine tests, the version number of the Basic Engine will be shown first, as the following example:

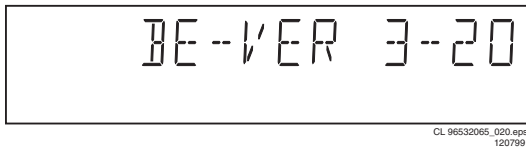


Figure 5-24

By pressing the NEXT key, the Basic Engine tests are started.

5.5.2 TRAY TEST

First, the tray is tested. The purpose of this test is also to give the user the opportunity to put a disc in the tray of the DVD player. Some tests on the Basic Engine require that a disc (e.g. DVD MPTD test disc) is present in the player. At the end of the Basic Engine tests this tray test will be repeated solely to enable the user to remove the disc in the tray. The local display will look as follows:

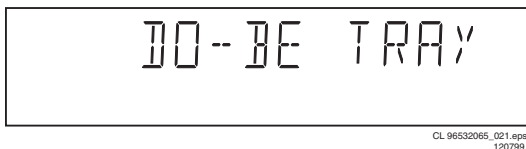


Figure 5-25

By pressing PLAY or PAUSE the user can toggle the position of the tray. Note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT will proceed to the next test, after the tray has been closed (by the software) if it was open.

5.5.3 SLEDGE TEST(visual test)

The second Basic Engine test tests the sledge; the user can move the sledge as many times as desired by using PLAY (nucleus BeSledgeOut) and PAUSE (nucleus BeSledgeIn). Pressing NEXT on the local keyboard proceeds to the next test. Note that this test will not contribute to the test result of the Basic Engine. The local display will look as follows during the sledge test:

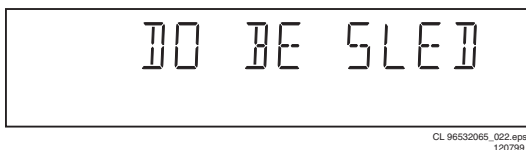


Figure 5-26

5.5.4 DISC MOTOR TEST(visual test)

The third Basic Engine test tests the disc motor (nucleus BeDiscMotorOn); the local display looks as follows:

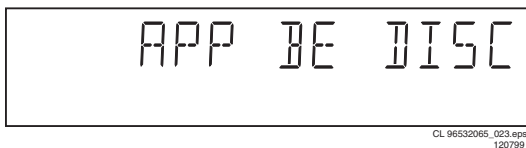


Figure 5-27

By pressing PLAY the user confirms that the disc motor is running; pressing PAUSE indicates the disc motor does not work. Pressing NEXT proceeds to the next test, after a reset

of the disc motor (nucleus BeDiscMotorOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (disc motor is running).

5.5.5 FOCUS TEST(visual test)

The fourth Basic Engine test tests the focussing; first focussing is turned on by calling nucleus BeFocusOn. The display will look as follows:

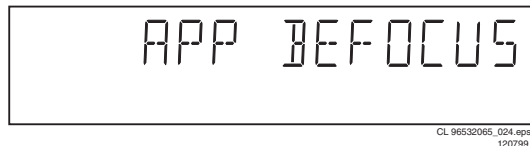


Figure 5-28

By pressing PLAY the user confirms that the focussing was successful; pressing PAUSE indicates a focussing failure. Pressing NEXT proceeds to the next test after a reset of the focussing (nucleus BeFocusOff); if NEXT is pressed before PLAY or PAUSE, the result of this test will be TRUE (focus successful).

5.5.6 RADIAL TEST(visual & listening test)

The fifth Basic Engine test tests the radial functionality (nucleus BeRadialOn); the local display looks as follows:



Figure 5-29

By pressing PLAY the user confirms that the radial function worked; pressing PAUSE indicates the function does not work. Pressing NEXT proceeds to the next test, after a reset of the radial (nucleus BeRadialOff). If the user presses NEXT before pressing PLAY or PAUSE, the result of this test will be TRUE (radial successful).

5.5.7 JUMP TEST(listening test)

The sixth and last Basic Engine test tests the jumping by calling nuclei BeGroovesIn, BeGroovesMid and BeGroovesOut. During this test, the local display looks as follows:

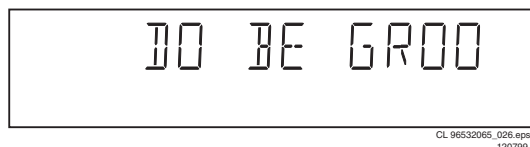


Figure 5-30

The user can switch between the three different types of groove settings by pressing PLAY (forward to next nucleus in the list In-Mid-Out) or PAUSE (backward in the list In-Mid-Out). This is done in a cyclic manner; note that this test will not contribute to the test result of the Basic Engine. Pressing NEXT proceeds to the next test, after the disc motor has been shut off with a call to nucleus BeDiscMotorOff.

5.5.8 TRAY TEST

As a last action for the Basic Engine tests, the tray test is repeated. The local display will look as follows:

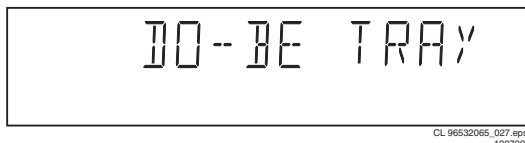


Figure 5-31

This test is meant to give the user the opportunity to remove the disc in the tray. The tray position can be toggled using the PLAY and PAUSE key. The tray will be closed (by the software, if it is open) before proceeding to the next test when the user presses the NEXT key.

5.5.9 ERROR LOG (see table on page 30)

Reading the error log and error bits information can be useful to determine any errors that occurred recently during normal operation of the DVD player. Reading the error log is done by nucleus LogReadErr. The display during the errorlog readout looks as follows :

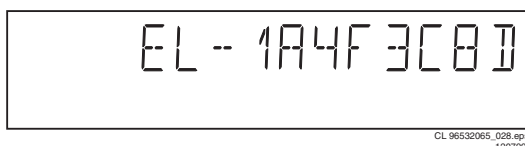


Figure 5-32

By pressing PLAY or PAUSE the user can move forward or backward (respectively) through the logged error codes. The highlighted number indicates which errorcode is currently on display (in the example above, errorcode number 4 is displayed). If "0000" is displayed at all positions, the error log is empty. Display of the logged errors is done in a cyclic manner. The errorcode with the lowest highlighted number is the most recent. By pressing NEXT on the local keyboard, the user can proceed to the next test.

5.5.10 ERROR BITS (see table on page 30)

Reading the error bits is done by nucleus LogReadBits. The display during the errorbits readout looks as follows:

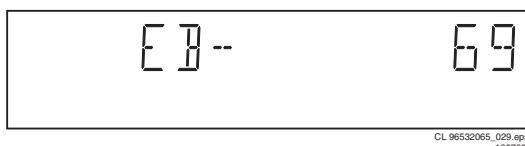


Figure 5-33

Only the set errorbits will be shown by their (decimal) number. Refer to the appropriate documentation for the explanation of each bit number. If the display only shows "EB-0", no error bits were set. By pressing NEXT the user can continue to the next test.

5.6 LOOP TEST (see table below)

At the start of the loop test, the display will show the result of the interactive player test:

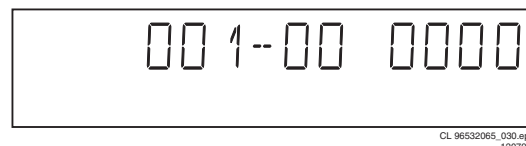


Figure 5-34

The left side of the display contains a 3-digit code, which can have a value between 000 and 111. These values are to be interpreted as follows:

Displayed Value	Indication for each module		
	Basic Engine	Mono PCB	Display PCB
000	ok	ok	ok
001	ok	ok	faulty
010	ok	faulty	ok
011	ok	faulty	faulty
100	faulty	ok	ok
101	faulty	ok	faulty
110	faulty	faulty	ok
111	faulty	faulty	faulty

CL 96532065_031.eps
120799

Figure 5-35

The loop test will perform the same nuclei as the dealer test, but it will loop through the list of nuclei indefinitely. The display of the DVD player will display not only the three digits indicating correct/faulty modules and the last found error code (as mentioned, faults are detected as far as they can be within the scope of the diagnostic software), but also a loop counter indicating how many times the loop has been gone through. Example:

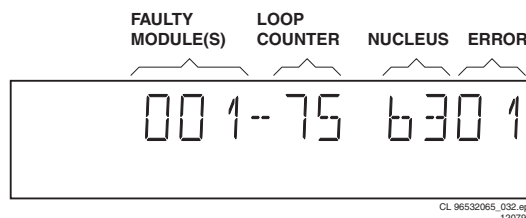


Figure 5-36

The number after the hyphen indicates the number of times the loop test has been performed; the 4 digits at the right side of the display show the last error that was found when running the loop test: the leftmost two digits of this code indicate which nucleus resulted in a fault; the rightmost two digits refer to the faultcode within that nucleus. For further explanation of this error code, see list of error codes below.

ERROR CODES LOOP TEST

ERROR CODE	NUCLEUS NUMBER	ERROR DESCRIPTION
0601	6	Calculated checksum of FLASH is not correct
1101	11	I2C bus busy before start
1102		NVRAM access time-out
1103		No NVRAM Acknowledge
1104		NVRAM reply time-out
1201	12	I2C bus busy
1202		I2C bus not working
1203		Slave controller not responding
1204		Slave response is not correct
1301	13	Parity error from basic engine to serial
1302		Parity error from serial to basic engine
1303		No communication between serial and basic engine
1304		Communication time-out error
1601	16	The SDRAM is faulty
5201	52	I2C bus busy
5202		Error sending I2C command to COLOR SETUP IC
5203		Colour setup IC not responding
5204		Colour setup IC response is not correct
5401	54	I2C bus busy
5402		Error sending I2C command to SCART SWITCH IC
5403		SCART Switch is not responding
5403		SCART Switch response is not correct

CL06532096_006.eps
050700

Figure 5-37

Error log / bits table	Read ERROR LOG in player script	Read ERROR BITS in player script
Basic engine errors	Value:	Value:
Command to the Basic Engine not allowed in this state or unknown command	150101	8
Parameter(s) from the command to the Basic Engine is not valid	150102	7
Sledge could not be moved to the inner home position	150103	6
Focus failure	150104	5
Turntable motor speed could not be reached within timeout	150105	4
Radial servo could not get on track on the disc	150106	3
PLL could not lock in the accessing or tracking state	150107	2
Subcode or sector information could not be read	150108	1
requested subcode could not be found	150109	16
Tray could not be closed or opened completely	15010A	15
TOC could not be read within timeout	15010B	14
The requested seek on the disc could not be executed	15010C	13
A requested lead-in is not on the disc	15010D	12
A non existing burst cutting area is requested	15010E	11
S2b communication error	1501F0	10
S2b communication error	1501F1	9
S2b communication error	1501F3	24
S2b communication error	1501F4	23
S2b communication error	1501F5	22
Digital PWB errors		
Communication error with the Sti 5505	90000	32
Communication error with the Sti 5505	90001	31
Display processor errors		
Communication error with the display processor	190000	40

5.6.1 Servicing DVD loader

The DVD Loader / mechanism, VAL6011, has to be exchanged completely in case of failure. A new mechanism can be ordered with codenumber 9305 023 61101.

5.6.2 Reprogramming of new mono boards.

Caution

This information is confidential and may not be distributed. Only a qualified service person should reprogram the mono board.

After reset of NV-memory or repair of the mono board, all the customer settings and also the region code will be lost.

Reprogramming of the mono board will put the player back in the state in which it has left the factory, i.e. with the default settings and the allowed region code.

Reprogramming is limited to 25 times

When the counter reaches 25, reprogramming is not possible anymore

Reprogramming will be done by way of the remote control.

Put the player in stop mode, no disc loaded.

Press the following keys on the remote control:

<PLAY> followed by numerical keys <1> <5> <9>

The display shows: "-----"

Press now successively the following keys :

for DVD612 /002 /021 /051 : <0><2><7> <0><0><0><0><0><0><0><0><0>

Press <PLAY> again.

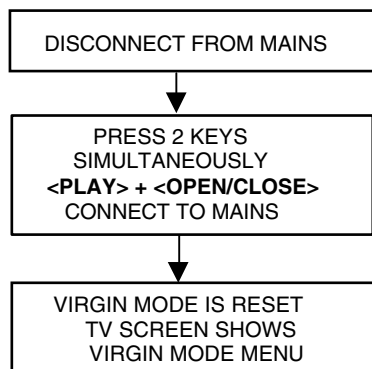
The TV screen will become BLUE during a short time to confirm that the mono board has been reprogrammed, then the set goes to standby mode.

CL 16532007_008.eps
010201

Figure 5-38

5.6.3 Reset of Virgin Mode

After the player has been powered up for test by the dealer, it would have gone through the Virgin Mode. It is possible to reset the settings made during that mode before the delivery of player to the customer. This can be done as shown in the following diagram:

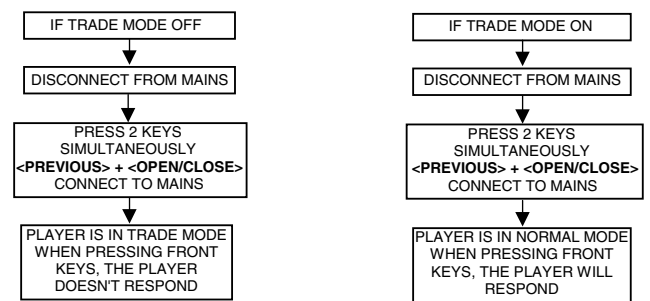


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070700

Figure 5-39

TRADE MODE

When the player is in Trade Mode, the player cannot be controlled by means of the front key buttons, but only by means of the remote control.



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050700

Figure 5-40

5.7 Test Instruction Audio/Video Board

These test instructions can be used for all versions of the A/V board which has the following outputs:

- Audio L/R
- 5.1 Audio output
- Subwoofer output
- Optical / Coaxial digital output
- CVBS
- Y/G_vid,U/B_vid,V/R_vid output
- S-video
- Scart output

5.7.1 General

- All the waveforms measurement carried out in these test instruction will be base on the testpoint indicated in the A/V board schematic diagram in the Service manual.
- Impedance of the measuring-equipment should be > 1M Ω
- Most of the tests can be done using either the Diagnostic software "Player script" which can be found in the chapter "Diagnostic Software description and troubleshooting" or the Menu interface using the Service PC with a terminal emulation program (e.g. Window Hyperterminal) where it is possible to control the execution of the Diagnostic Nuclei
- Setup for the measurement will be done in set level with all modules connected as shown in the Wiring Block diagram.

5.7.2 General start-up measurement

Supply check:

Before starting the measurement,ensure that all power supply are connected to the A/V board.

Pin nbr	Supply
1010-9	-5V (-Vcc)
1010-10	+5V
1010-11	+5V

The supply currents can be measured using a Tektronics AM503B current probe or equivalent.

Supply	Power consumption (AVG)
+5VA	+5V \pm 3% I = 200mA
+5Vvid	+5V \pm 3% I = 200mA
-5V	-5V \pm 3% I = 200mA

Clock Check

Ensure the present of the clock to the DAC

Clock Name	Testpoint	Frequency
PCM_CLK	TP10	11.2896MHz \pm 0.02% tolerance

Audio mute check

Measure the Audio mute voltage input at pin 12 of connector 1010

Status	Value
AudioMuteOn	4.7V \pm 10%
AudioMuteOff	-8V \pm 10%

To toggle between ON and OFF,use the following commands:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On
19b	AudioMuteOff	Audio Mute Off

5.7.3 Audio DAC and amplifier

Ensure that the Audio mute signal is OFF

To check the DAC and buffer amplifier,send the following commands:

Ref.#	Command Name	Remarks	Audio output
21a	AudioSineOn	Audio Sine signal ON	Sine,1Khz on stereo
----	Press stop button	Audio Sine signal OFF	No waveform
20a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels
20b	AudioPinkNoiseOff	Audio Pinknoise OFF	No waveform

The audio signal (sine or pink noise) will also be present on the digital output (SPDIF).This can be checked by connecting digital signal to an amplifier with digital input. Check the I2S and audio signal at the following testpoints:

Name	Testpoint
LRCLK	TP8
SCLK	TP9
PCM_CLK	P10
PCM_OUT0	TP7
PCM_OUT1	TP27
PCM_OUT2	TP28
SPDIF	TP11
Front L/R out-Audio cinch	TP13
H/P L/R out	TP20
Analog out -Audio cinch	TP25

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic software description and troubleshooting".

5.7.4 Video output and buffer amplifier

Check DC output-level at all video cinch output : 1.0V DC \pm 10%

Generate a color bar using the following software commands:

Ref.#	Command Name	Remarks
23a	VideoColDencOn	Colour DENC ON
61a	VideoColOutRGB	RGB Colourbar
61b	VideoColOutYUV	YUV Colourbar
23b	VideoColDencOff	Colourbar DENC OFF

Check the video outputs at the following testpoints:

Name	Testpoint
B_VID	TP1
G_VID	TP2
R_VID	TP3
CVBS out	TP14
S-Video-C out	TP15
S-Video-Y out	TP16
Y out	TP17
U out	TP18
V out	TP19

All waveforms can be refer to the waveform diagram in the chapter "Diagnostic Software description and troubleshooting".

5.7.5 Play and 16/9 detection

Check DC voltage at S-Video-chroma output (pin 4) with a 6K8 ohm load and Scart connector (pin 8) and change the 0/6/12 input (1010-8) using the following commands:

Ref.#	Command Name	Remarks	Chroma output
25a	VideoScartLo	Sends out 0V \pm 0.5V	<0.1V
25b	VideoScartMi	Sends out 6V \pm 10%	2.0V \pm 10% with load 5.0V \pm 10% without load
25c	VideoScartHi	Sends out 12V \pm 10%	<0.1V

5.7.6 Kill circuit

To check the functionality of the Kill circuitry, the audio outputs has to be present by the following command:

Ref.#	Command Name	Remarks	Audio output
21a	AudioPinkNoiseOn	Audio Pinknoise ON	Pink Noise on 6 channels

Check the audio outputs at the audio cinch of the A/V board : Pink Noise

Activate the Kill circuit by using the following command:

Ref.#	Command Name	Remarks
19a	AudioMuteOn	Audio Mute On

Check the audio outputs at the audio cinch of the A/V board : No waveform

Switch off the kill circuit by using the following command:

Ref.#	Command Name	Remarks
19b	AudioMuteOff	Audio Mute Off

Check the audio outputs at the audio cinch of the A/V board : Pink Noise

5.8.2 Functionality description:

The essential component of the display PCB is the μ P (slave). This slave works on an 8MHz resonator and has a reset circuit that is triggered by the +5Vstby. After the reset pulse, the standby control line will release the reset of the host μ P. This host μ P will then initialise the slave. In addition, when going to stand-by, the slave will put the host μ P in reset. When the slave receives the right IR or key code to leave the standby mode, the reset of the host μ P will be released.

Other slave functions are:

- Square signal generator to generate the filament voltage, which is required for an AC FTD.
- Generates the grid and segment scanning for the FTD.
- Generates a scanning grid for the keys (separated from display scanning).
- Has inputs for RC (RC5 and RC6) and P50 (P50 controller is built in).

5.8.3 General

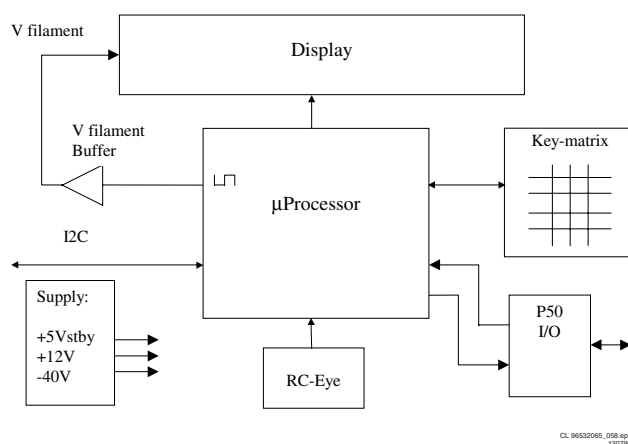
- Oscilloscope measurements have been carried out using a Philips PM3392A.
- Impedance of measuring-equipment should be $> 1\text{M}\Omega$.
- To do correct measurements we recommend to use supply 3122 427 22570.

5.8 Test instructions Display board

5.8.1 Introduction

These test instructions are written for all versions of the display PCBAS.

The contents of the PCB can be split up into next blocks:



CL 96532065_008.dps
130799

Figure 5-41

5.8.4 Reset

Check next reset timing with an oscilloscope at pin 10 of the microprocessor.

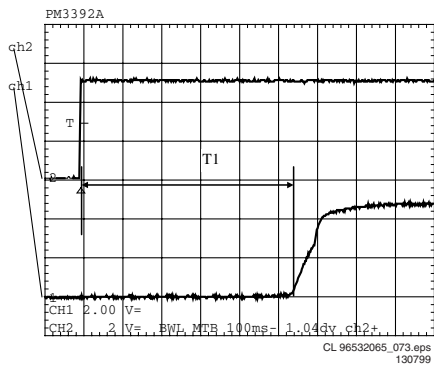


Figure 5-42

Timing: 400msec < T1 > 700msec.
CH1: +5Vstby voltage at power on.
CH2: Voltage at pin 10.

5.8.5 Display steering

Check next timing and level for all grid-lines (G1 r G14).

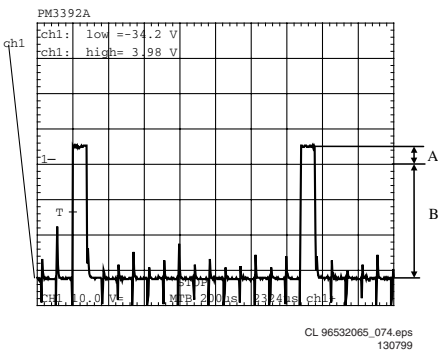


Figure 5-43

1. Check level A: +4V5 +/-10% for grid lines 1 => 11
2. Check level A: +4V0 +/-10% for grid lines 12 => 14
3. Check level B: -33V +/-10%
4. Check timing and levels of segment-lines P1 => P10:

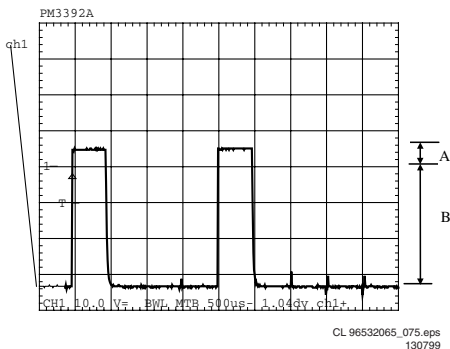


Figure 5-44

Level A: +4V5 +/-10%
Level B: -33V +/-10%
The data on these segment lines depend on the characters that are displayed.
The characters can be set by sending I2C commands to the display.

See the Slave URS how to send a display command.

5.8.6 Key-matrix

Connect a extra 10kΩ pull-up to pin 36 en 37 of the μP and check next matrix scanning at these pins.

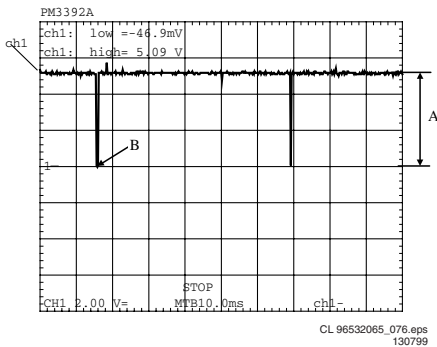


Figure 5-45

Level A: 5.0V +/-7%
Level B: 0V +/-200mV
Check matrix scanning from pin 26 until 33 of the μP.
The results should be the same as the diagram above.

5.8.7 I.R. receiver

Check at pin 23 of the μP if this line switches from low (< 0.3V) to high (> 4.5V), while pressing a key on a Philips RC5 or RC6 remote control.

5.8.8 Karaoke interface

The karaoke interface (4 lines) is a single direction communication.
This means that it consists of four μP output lines.
The interface can be checked by setting or resetting these output-ports via the I2C bus.
Send next command via the I2C bus:

Address	: 0x70
Command byte	: 0x24
Data byte	: xxxabcd
Where	: a = Karaoke reset.
	: b = Karaoke data.
	: c = Karaoke clock.
	: d = Karaoke strobe.

5.8.9 P50 interface

P50 is a bi-directional serial interface, which is used for communication between video equipment. For European sets, this communication goes via pin 10 of the scart-bus. In other regions, it can be a cinch bus at the back of the set.

1. Keep the μP in reset by short-circuiting emitter and collector of transistor 7108, via resistor 3100 and 3104 transistor 7101 is switched on.
2. Check the voltage at the P50 output connector 1118-5: < 200mV.

When the reset is released the μP output-pin becomes low and transistor 7101 is switched off.

1. Check the voltage at the P50 output connector 1118-5: 4V9 +/-5%.
2. Check also the μP P50 input (μP pin 20): 5V +/-5%.
3. Connect the P50 line (connector 1118-5) to ground.
4. Check again the μP P50 input (μP pin 20): <0V3.

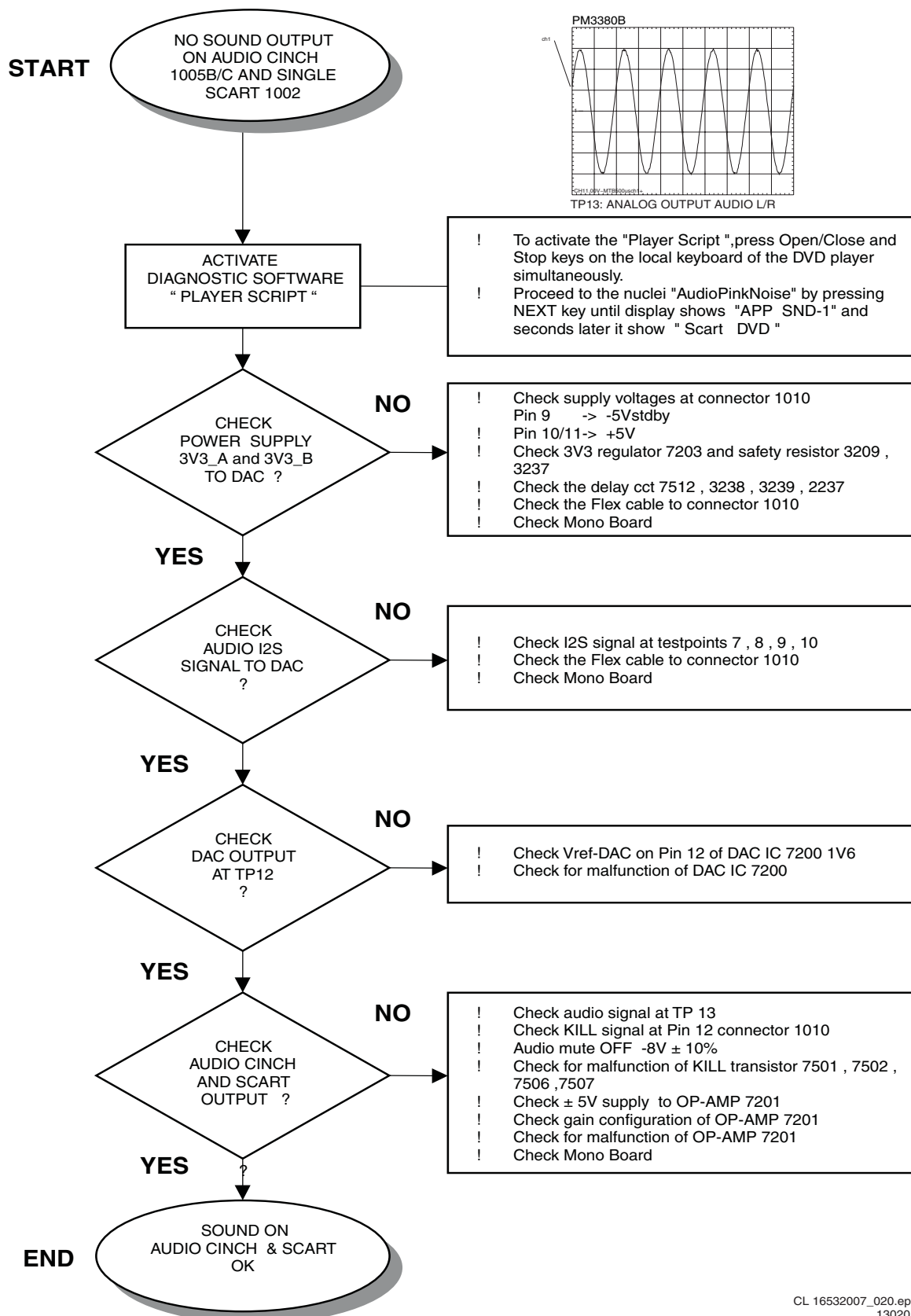
5.9 Troubleshooting

5.9.1 Troubleshooting A/V board

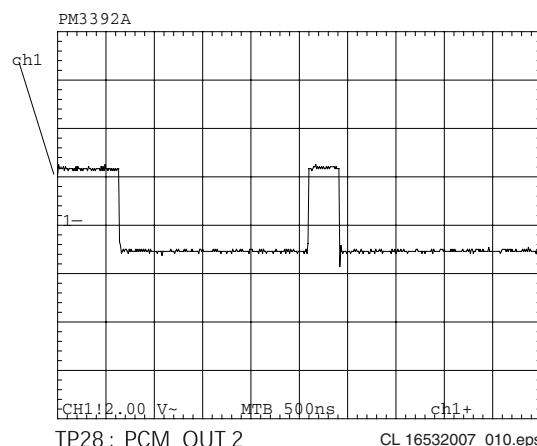
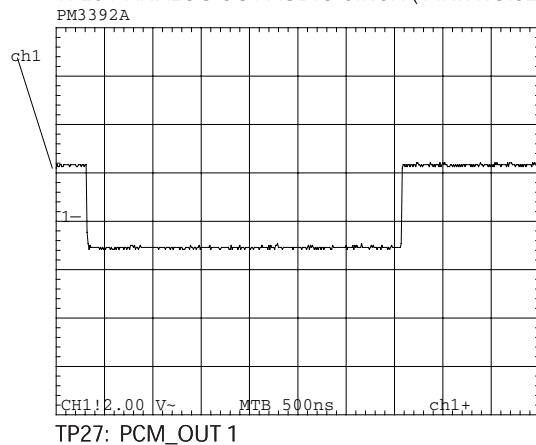
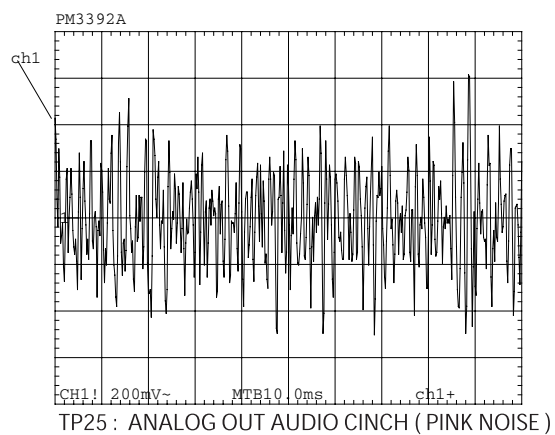
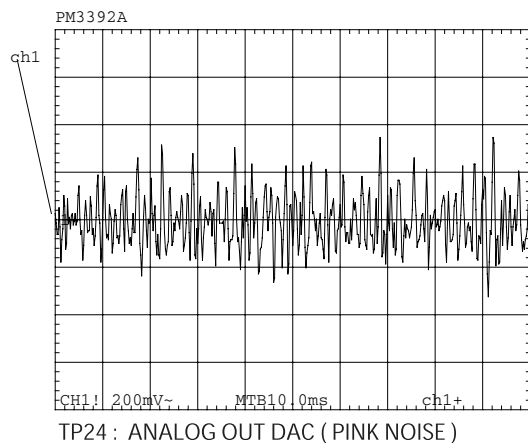
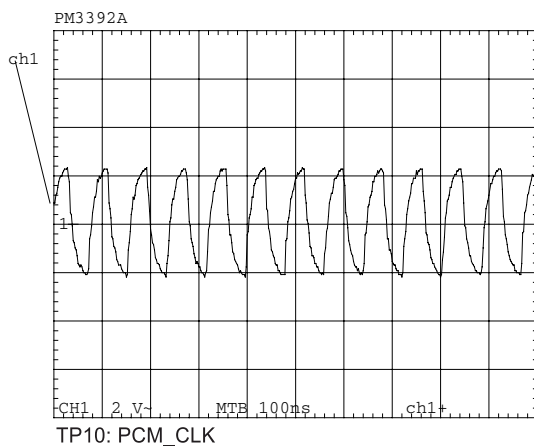
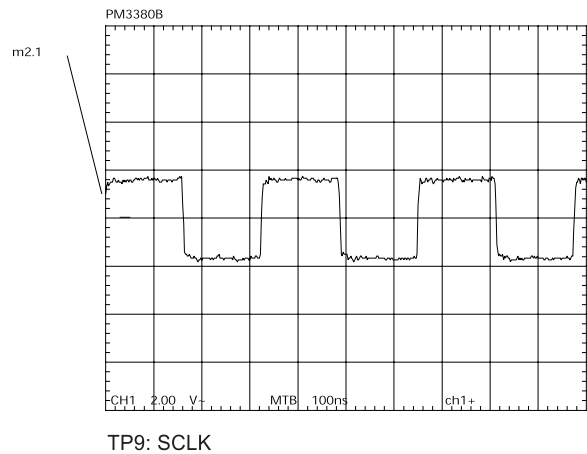
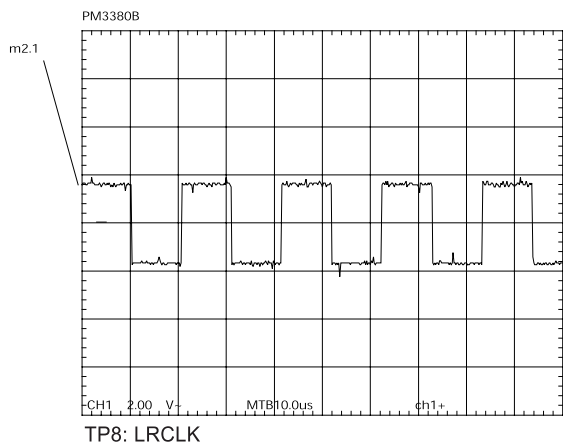
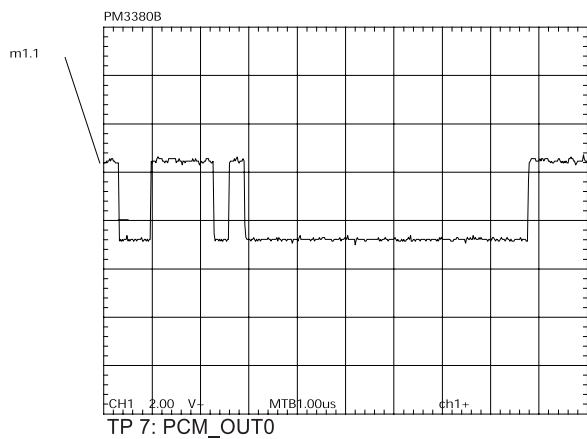
Testing of A/V board can be done using diagnostic software "PLAYER SCRIPT".

MONO board is used to generate a sound with the sound tests SND-1 and SND-2 or a VIDEO signal with the picture "DIAGNOSTIC SOFTWARE: SCRIPT INTERFACES".

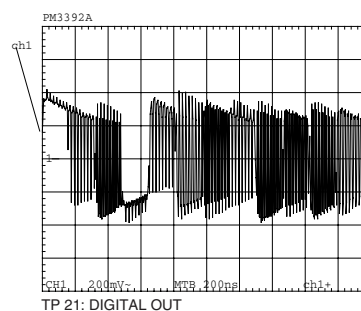
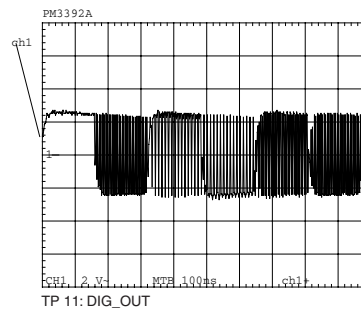
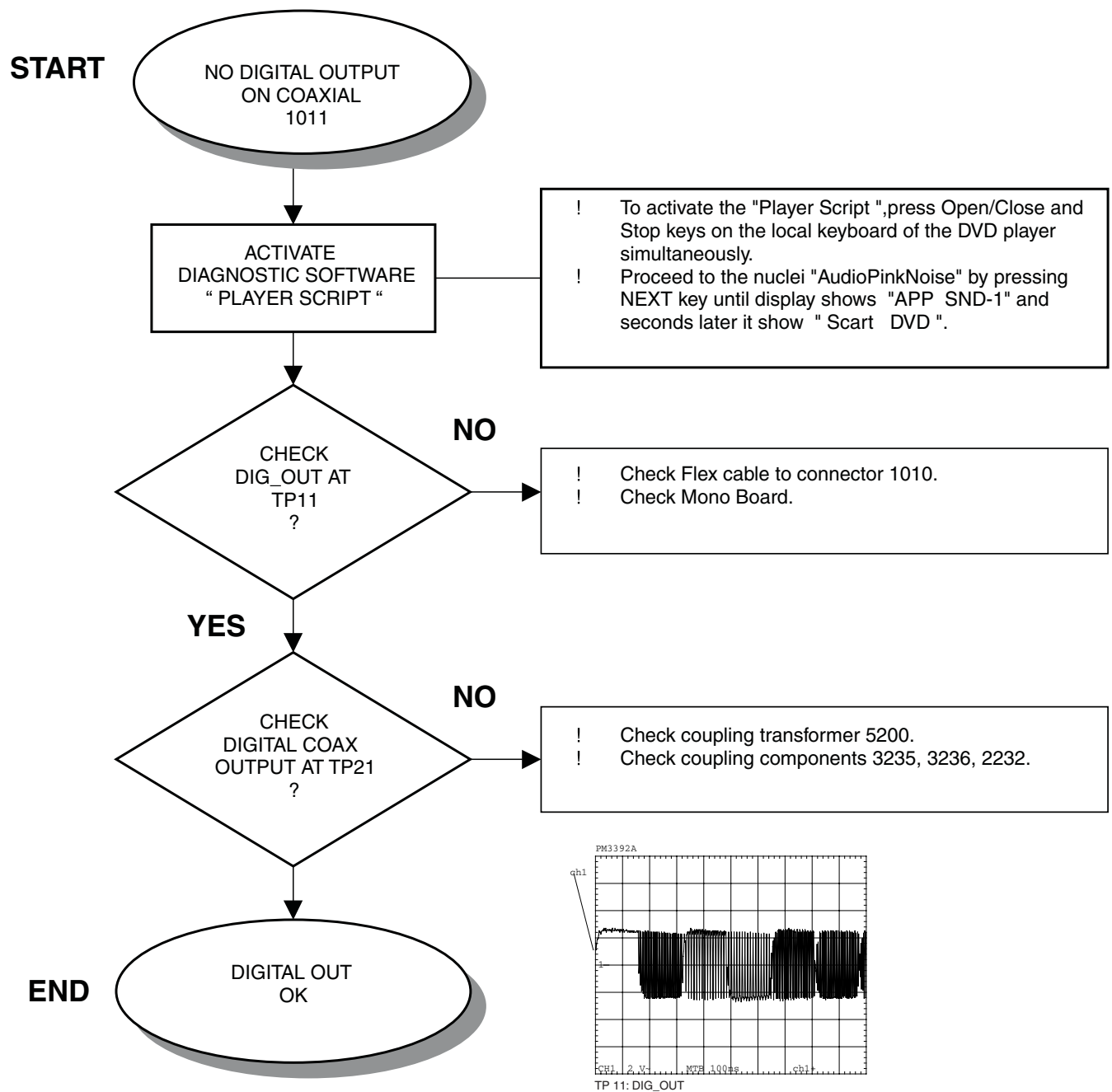
AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30241



AUDIO WAVEFORM MEASUREMENT

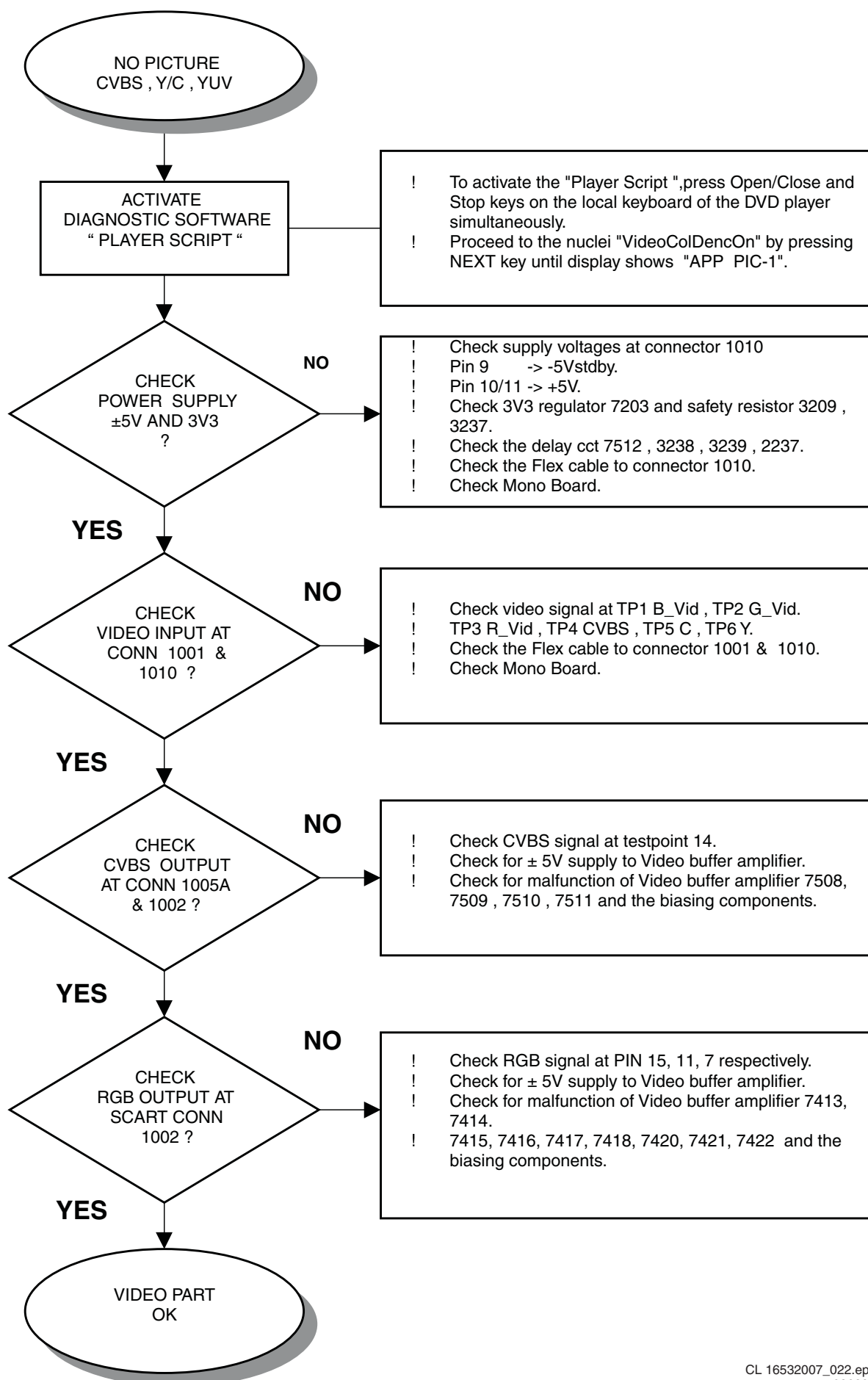


AUDIO PART OF AUDIO/VIDEO BOARD 3139 243 30241

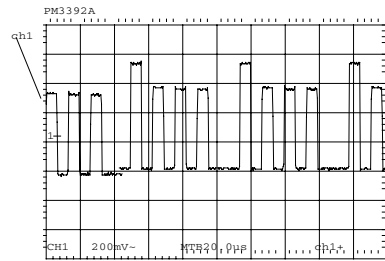


VIDEO PART OF AUDIO/VIDEO BOARD 3139 243 30241

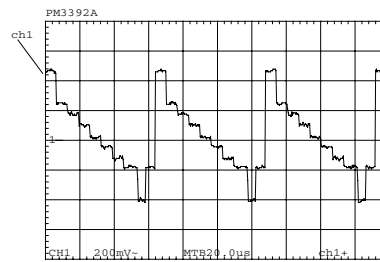
START



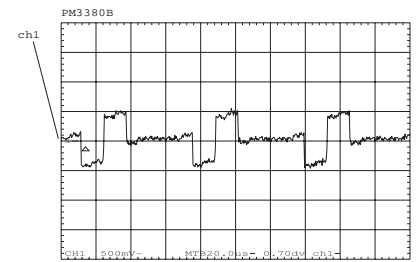
VIDEO WAVEFORM MEASUREMENT



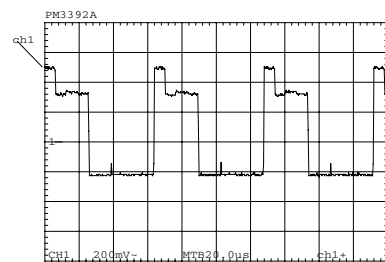
TP 1: VIDEO B



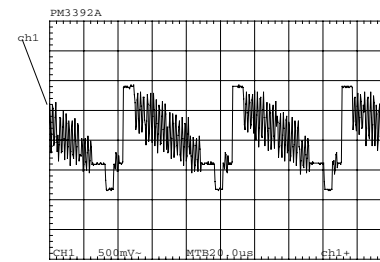
TP 6: Y_ENC



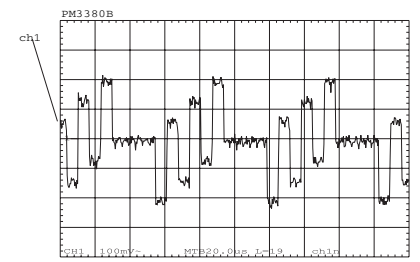
TP 19: V_VID OUT



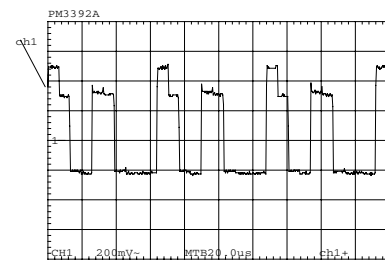
TP 2: VIDEO G



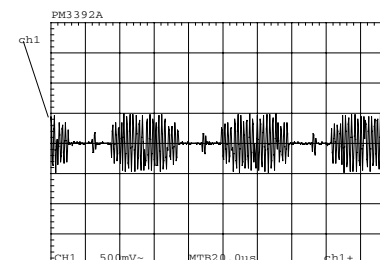
TP 14: CVBS_OUT



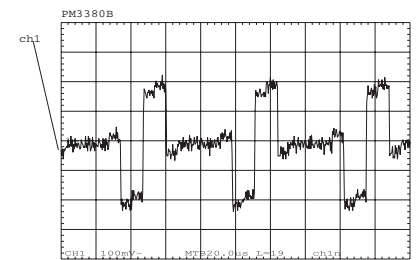
TP 22: U_VID



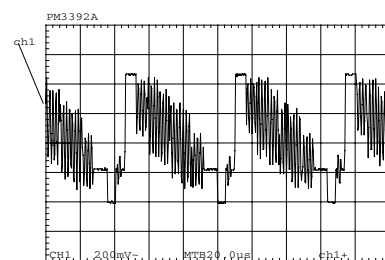
TP 3: VIDEO R



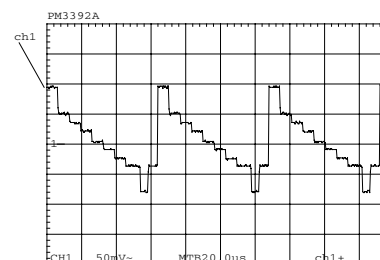
TP 15: C_OUT



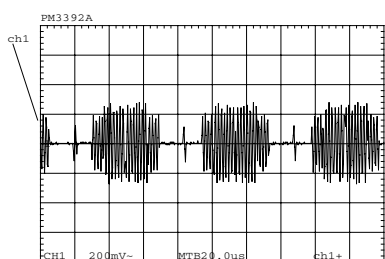
TP 23: V_VID



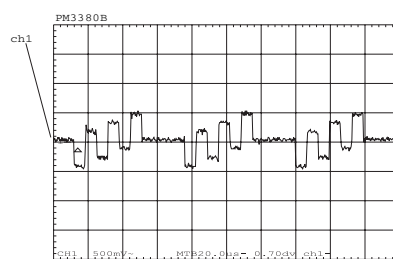
TP 4: CVBS



TP 16/17: Y_OUT

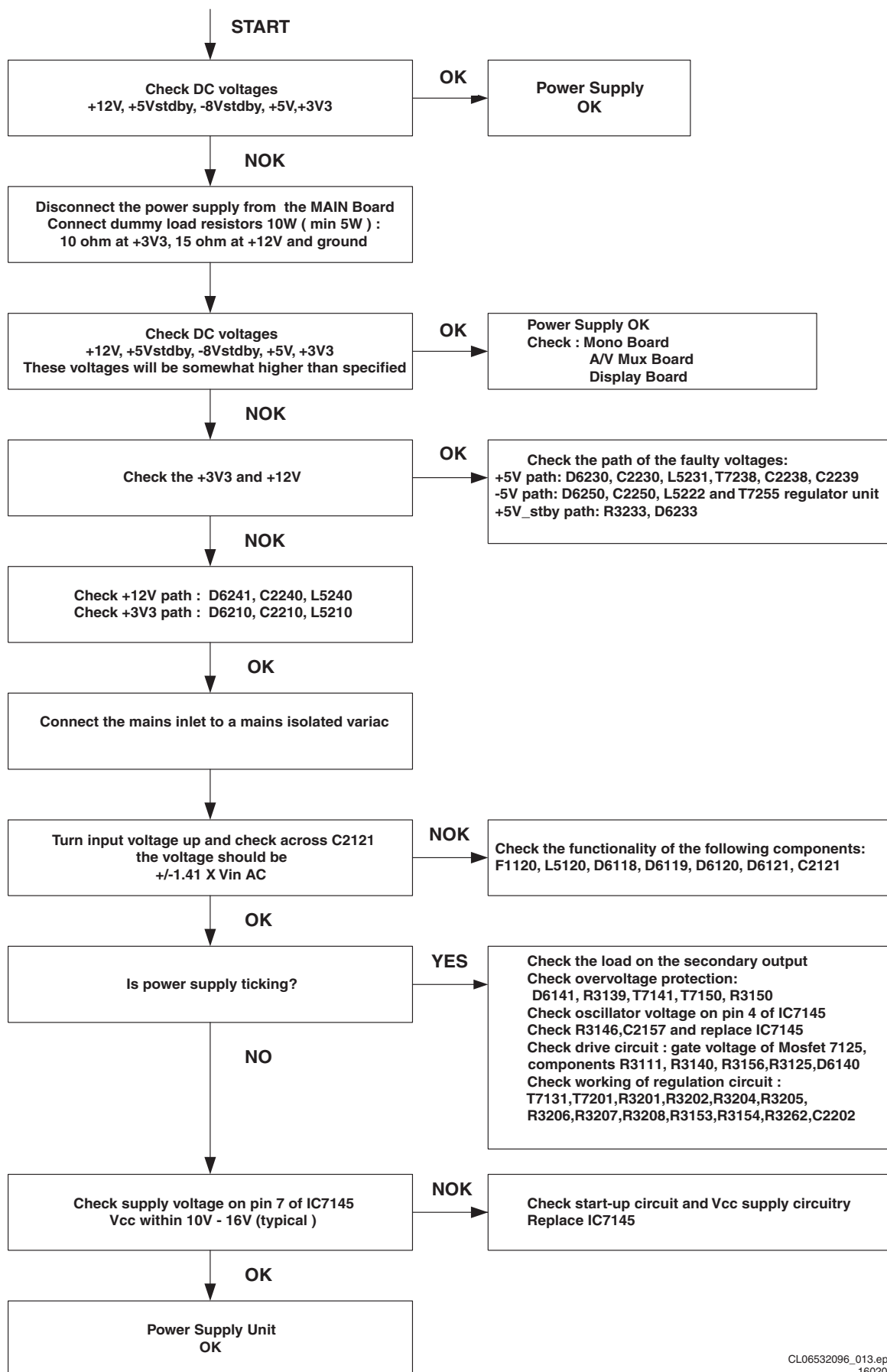


TP 5: C_ENC



TP 18: U_VID OUT

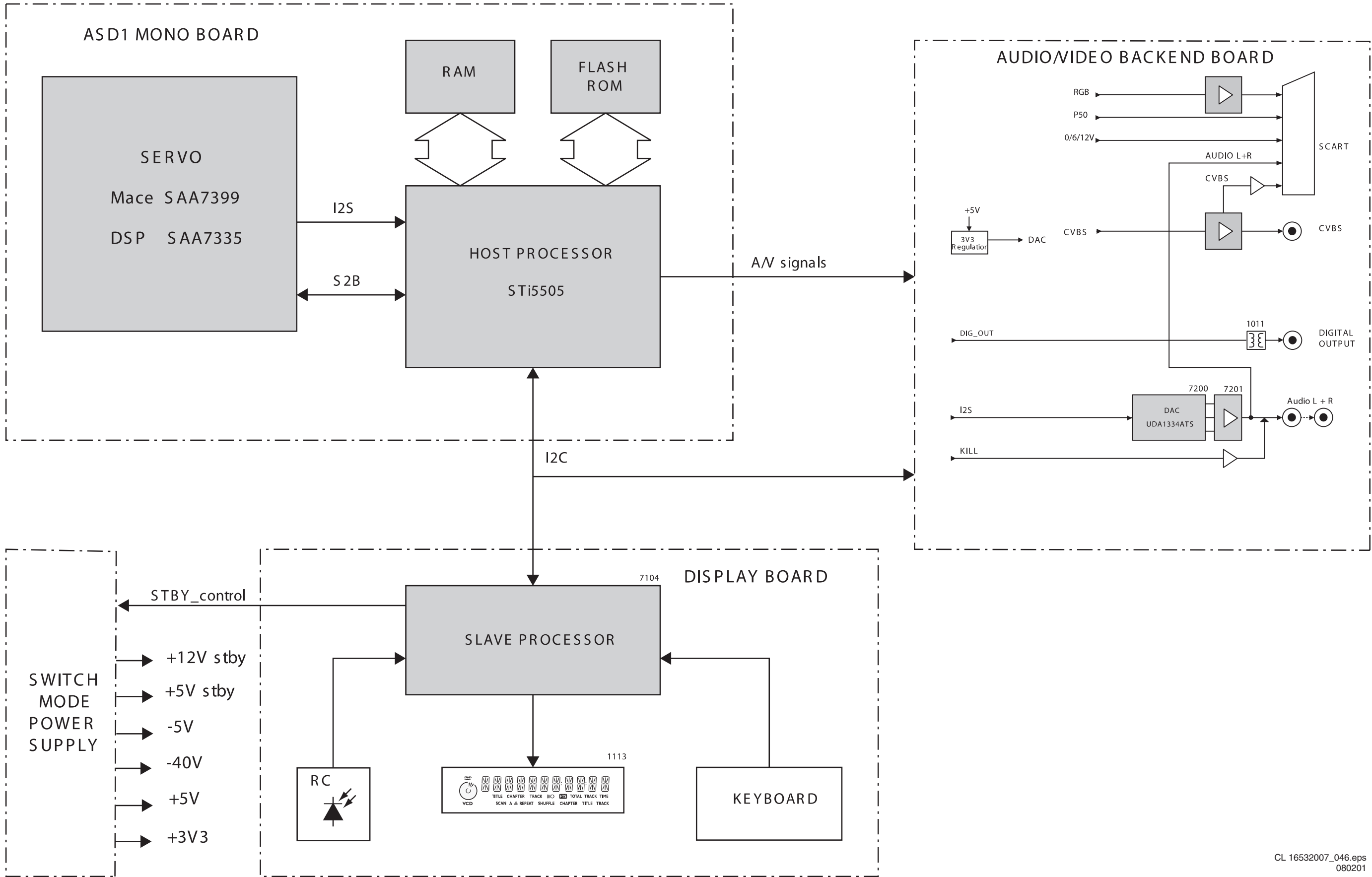
TROUBLESHOOTING POWER SUPPLY UNIT VFM EURO



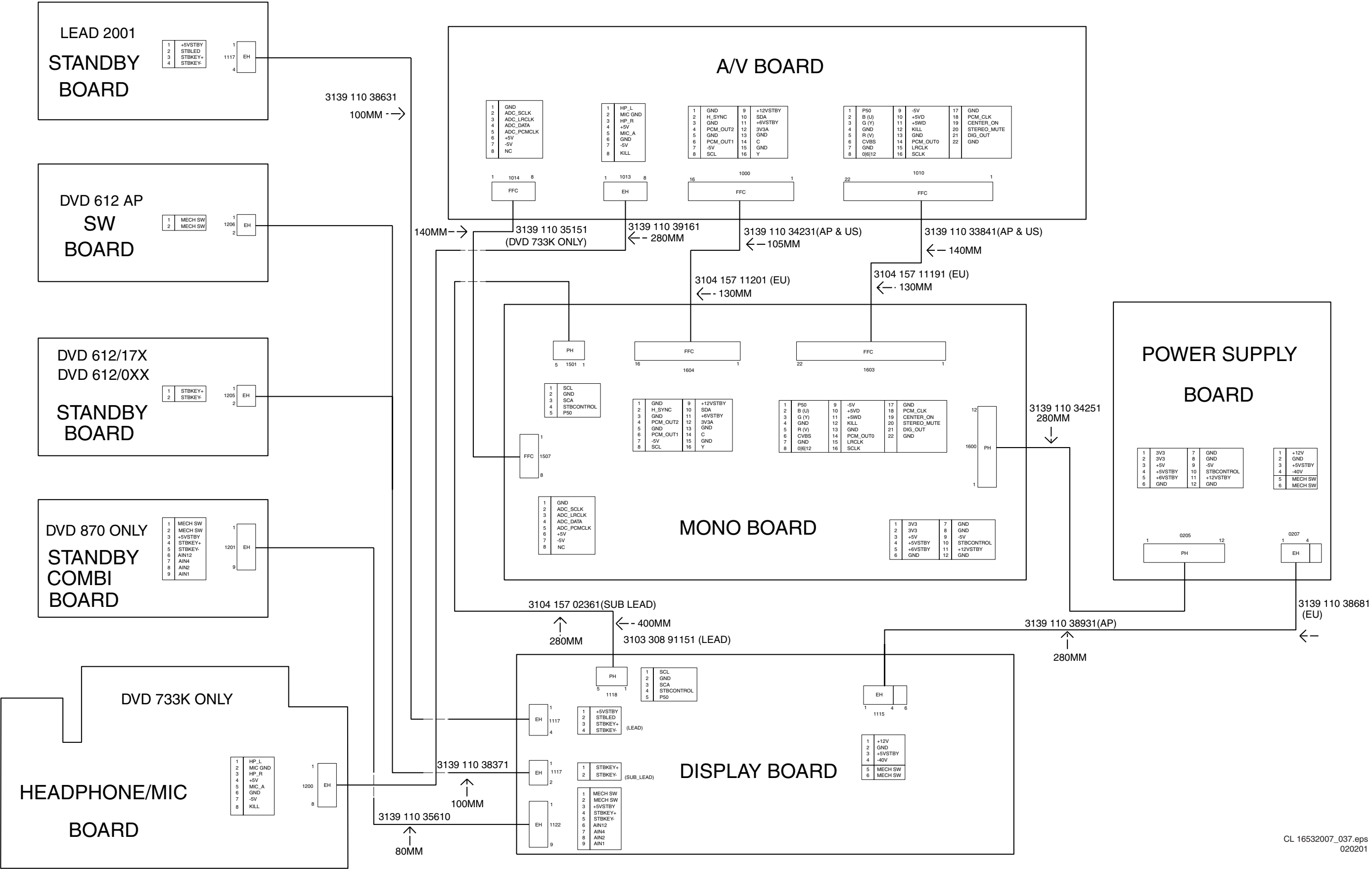
6. Block- and wiringdiagram.

Blockdiagram DVD 612 /XX1

Block Diagram DVD612/XX1

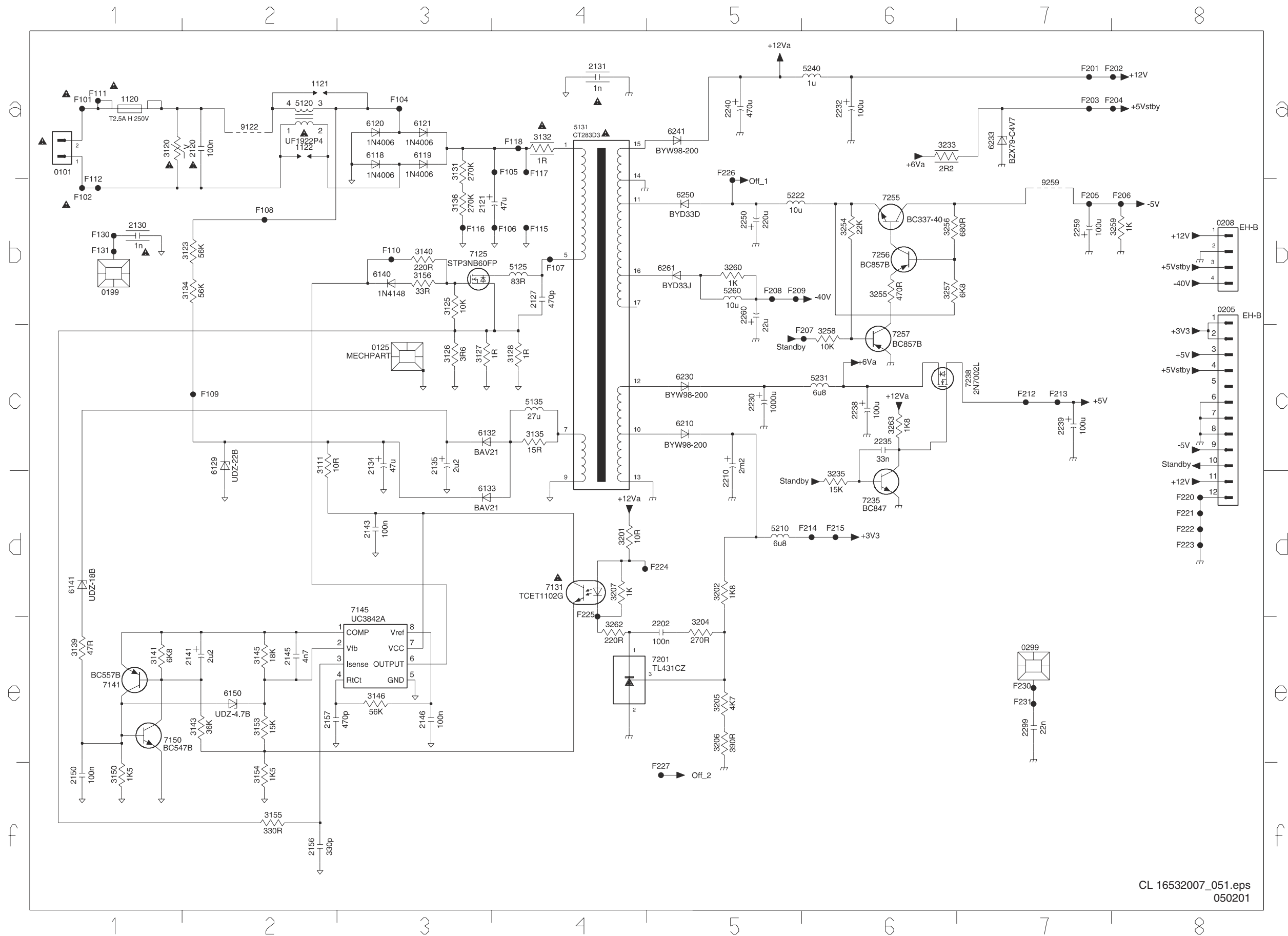


Wiringdiagram



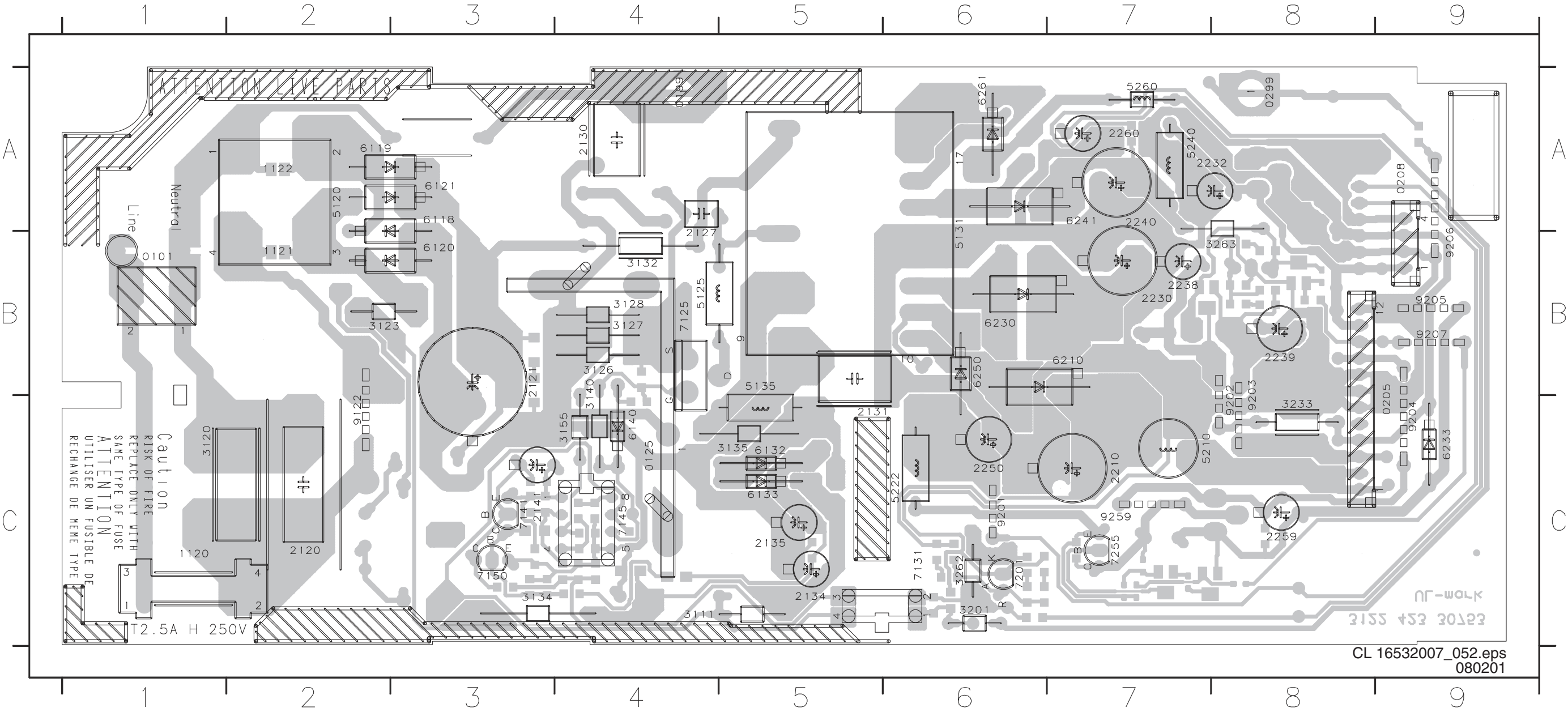
7. Electrical diagrams and Print-layouts

Power Supply Unit VFM EURO (3122 427 22570)



Layout Power Supply Unit VFM EURO (component side)

0101	B1	0209	A9	2121	B3	2130	A4	2135	C5	2232	A8	2240	A7	2259	C8	3111	C4	3123	B2	3133	A3	3201	C6	5120	A2	5210	C7	5260	A7	6120	B3	6128	A4	6211	C6	6241	A7	7125	B4	7201	C6	7259	C8	9203	B8	9259	C7
0125	C4	0299	A8	2122	C2	2131	C5	2141	C3	2233	A8	2241	A6	2260	A7	3112	C5	3126	B4	3134	C3	3232	B8	5121	B2	5222	C6	6110	C3	6121	A3	6132	C5	6230	B6	6250	B6	7131	C6	7233	A8	9122	C2	9204	C9		
0199	A4	1120	C1	2123	B3	2132	C5	2210	C7	2236	B6	2250	C6	2261	A7	3120	C1	3127	B4	3135	C5	3233	C8	5125	B4	5230	B7	6111	C3	6122	C3	6133	C5	6231	B6	6259	C7	7141	C3	7236	B7	9125	B4	9205	B9		
0205	C9	2119	B2	2127	B4	2133	C5	2211	B7	2238	B7	2251	B6	2263	A6	3121	C3	3128	B4	3140	B4	3262	C6	5131	B6	5231	B7	6118	A3	6123	B3	6140	C4	6233	C9	6260	A6	7145	C4	7237	B8	9201	C6	9206	B9		
0208	A9	2120	C2	2129	C4	2134	C5	2230	B7	2239	B8	2253	C7	3105	C1	3122	B2	3132	B4	3155	C4	3263	B8	5135	B5	5240	A7	6119	A2	6127	A4	6210	B7	6240	B6	6261	A6	7150	C3	7255	C7	9202	C8	9207	B9		



2142	A3	2146	A4	2156	A4	2202	A6	2235	B8	3125	B4	3137	A5	3143	A3	3150	A3	3156	A4	3204	A6	3207	A6	3235	B8	3241	B8	3255	A7	3258	A8	4201	B7	6141	A4	7238	B7
2143	A4	2150	A3	2157	A4	2203	A6	2262	B8	3131	B3	3139	A4	3145	A3	3153	A4	3202	A6	3205	A6	3208	A6	3236	B8	3253	A7	3256	A7	3259	A8	4202	C7	6150	A3	7256	A7
2145	A3	2152	A4	2201	A6	2234	B8	2299	C9	3136	B3	3141	A3	3146	A4	3154	A4	3203	A6	3206	A6	3234	B8	3237	B8	3254	A7	3257	A7	3260	C7	6129	A4	7235	B8	7257	A7

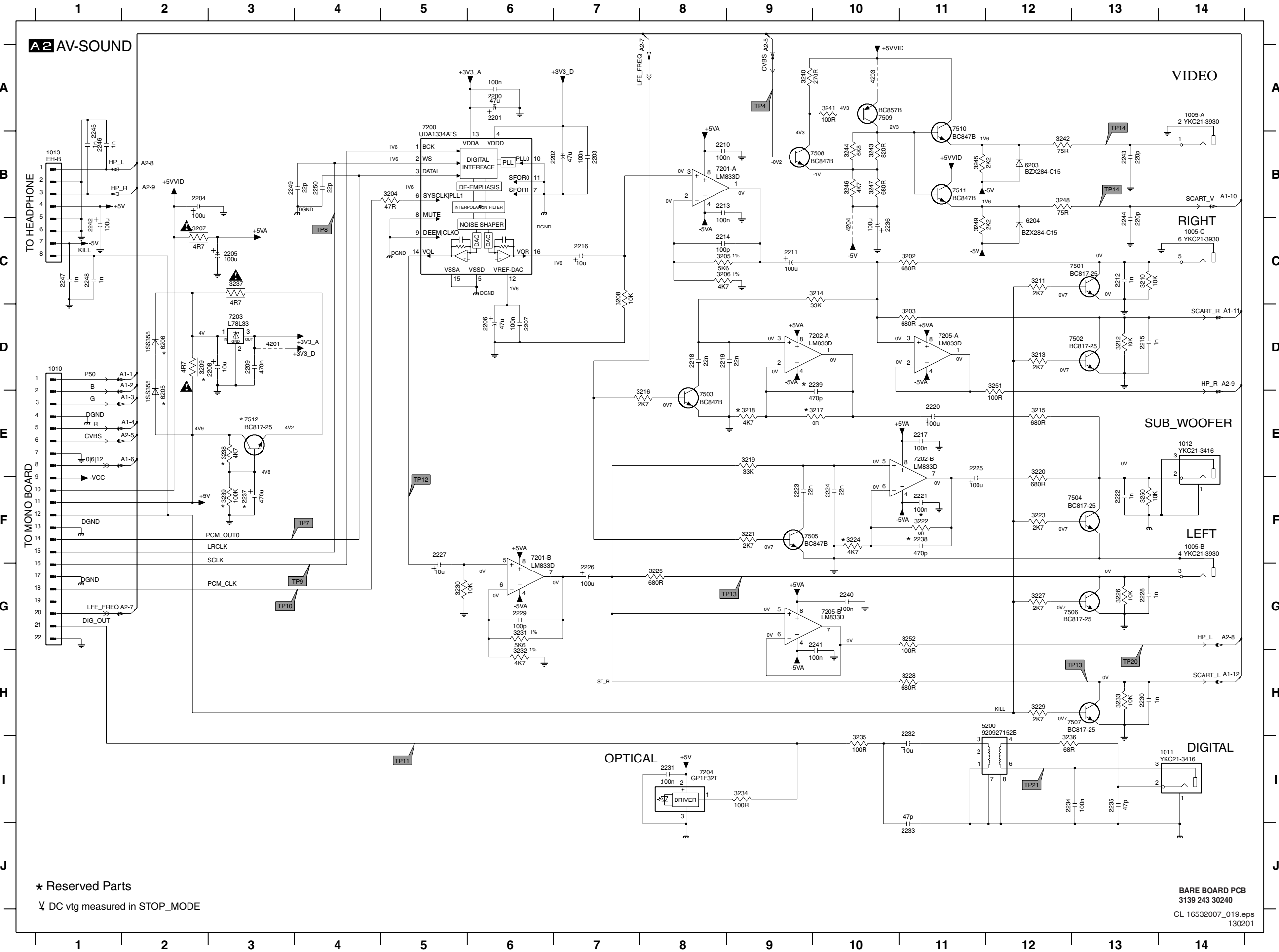


A 1 AV_VIDEO



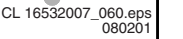
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1004 A14 7423 F12
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2105 D12
2106 D12
2107 F5
2108 F4
2109 G8
2110 H12
2111 B11
2112 C13
2113 H12
2114 A4
2115 D11
2116 C11
2117 D11
3100 A3
3102 B3
3111 A7
3113 A7
3114 A8
3115 B8
3116 B7
3117 B9
3118 B8
3119 B7
3120 A10
3121 C7
3122 C7
3123 D8
3124 D10
3125 D7
3126 D7
3127 D9
3128 D7
3129 D7
3130 B12
3131 F7
3132 F7
3133 F8
3134 F10
3135 F7
3136 F7
3137 F9
3138 G7
3139 G7
3140 C5
3141 C4
3142 C5
3143 C3
3144 D3
3145 D2
3146 D13
3147 E12
3148 E12
3149 F11
3150 E2
3151 E3
3152 E4
3153 F3
3154 F4
3155 F5
3156 F3
3157 F4
3158 H11
3159 H2
3160 G2
3161 H3
3162 H4
3163 H11
3164 H3
3165 H4
3166 H5
3167 H3
3168 H4
3169 B4
3170 B4
4100 A8
4101 C8
4102 B7
4103 E4
4104 E7
4105 F8
4106 F3
4107 G7
4108 G4
4109 I3
6102 B10
6103 B11
6104 D10
6105 F10
6106 F5
6107 H5
7100 A4
7401 C5
7402 C4
7403 D4
7404 E4
7405 E3
7406 E5
7407 H4
7408 H3
7409 H5
7413 A8
7414 A7
7415 A9
7416 C8
7417 D7
7418 D9
7419 D11

A/V Board (Sound)

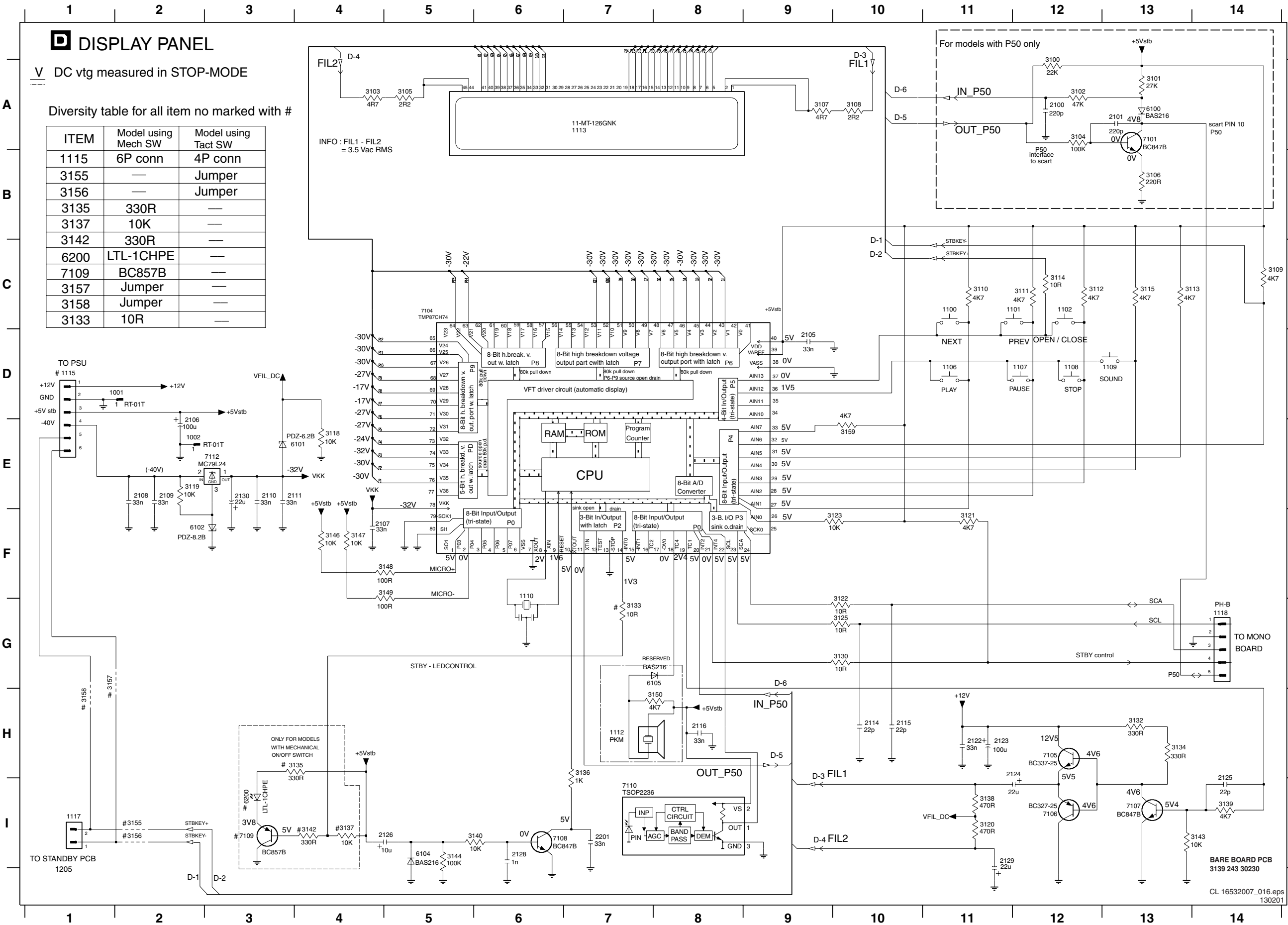


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- 1005-C C14
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- 1011 H14
- 1012 E14
- 1013 B1
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- 2201 A6
- 2202 B7
- 2203 B7
- 2204 B2
- 2205 C3
- 2206 D6
- 2207 D6
- 2208 D3
- 2209 D3
- 2210 B8
- 2211 C9
- 2212 C13
- 2213 B8
- 2214 C8
- 2215 D13
- 2216 C7
- 2217 E11
- 2218 D8
- 2219 D8
- 2220 E11
- 2221 F11
- 2222 F13
- 2223 F9
- 2224 F10
- 2225 E11
- 2226 G7
- 2227 F5
- 2228 G13
- 2229 G6
- 2230 H13
- 2231 I8
- 2232 H11
- 2233 J11
- 2234 H2
- 2235 I13
- 2236 C10
- 2237 F3
- 2238 F11
- 2239 D10
- 2240 G10
- 2241 G10
- 2242 C1
- 2243 B13
- 2244 C13
- 2245 B1
- 2246 B1
- 2247 C1
- 2248 C1
- 2249 B3
- 2250 B4
- 3202 C11
- 3203 D11
- 3204 B5
- 3205 C8
- 3206 C8
- 3207 C2
- 3208 C7
- 3209 D2
- 3210 C13
- 3211 C12
- 3212 D13
- 3213 D12
- 3214 C10
- 3215 E12
- 3216 E8
- 3217 E10
- 3218 E9
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- 3221 F9
- 3222 F11
- 3223 F12
- 3224 F10
- 3225 G8
- 3226 G13
- 3227 G12
- 3228 H11
- 3229 H12
- 3230 G5
- 3231 G6
- 3232 H6
- 3233 H13
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- 3235 I10
- 3236 I12
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- 3240 A9
- 3241 A10
- 3242 B12
- 3243 B10
- 3244 B10
- 3245 B11
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- 3248 B12
- 3249 C11
- 3250 F13
- 3251 D12
- 3252 G11
- 4201 D3
- 4203 A10
- 4204 C10
- 5200 H11
- 6203 B12
- 6204 C12
- 6205 E2
- 6206 D2
- 7200 A5
- 7201-A B8
- 7201-B F6
- 7202-A D9
- 7202-B E11
- 7203 D3
- 7204 I8
- 7205-A D11

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Display board



DISPLAY PANEL

DC vtg measured in STOP-MODE

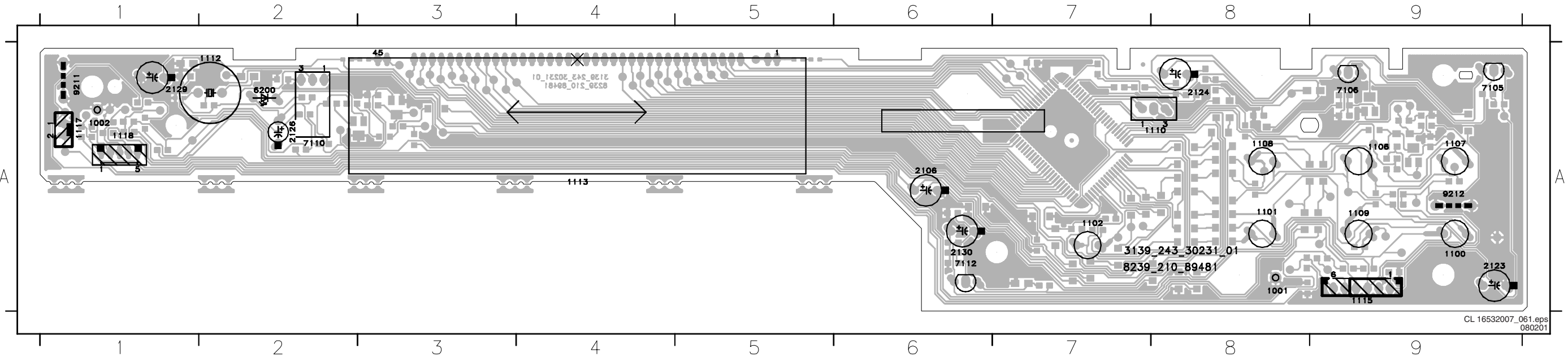
Diversity table for all item no marked with #

ITEM	Model using Mech SW	Model using Tact SW
1115	6P conn	4P conn
3155	—	Jumper
3156	—	Jumper
3135	330R	—
3137	10K	—
3142	330R	—
6200	LT1-1CHPE	—
7109	BC857B	—
3157	Jumper	—
3158	Jumper	—
3133	10R	—

- 1001 D2
- F141 D5
- 1002 E2
- F142 D9
- 1100 C11
- F143 A12
- 1101 C12
- F144 A12
- 1102 C12
- F145 G8
- 1106 D11
- F146 D3
- 1107 D12
- F147 E3
- 1108 D12
- F148 D1
- 1109 D13
- F149 D5
- 1110 F6
- F150 E5
- 1112 H7
- F151 E5
- 1113 A7
- F152 E9
- 1115 D1
- F153 C5
- 1117 I1
- F154 E5
- 1118 G14
- F155 E9
- 2100 A12
- F156 E5
- 2101 A13
- F157 E9
- 2105 D9
- F158 E5
- 2106 E2
- F159 E9
- 2107 F4
- F160 E9
- 2108 E2
- F161 E9
- 2109 E2
- F162 I6
- 2110 E3
- F163 I7
- 2111 E4
- F164 H6
- 2114 H10
- F165 A13
- 2115 H10
- F166 B12
- 2116 H8
- F167 B13
- 2122 H11
- F168 F1
- 2123 H11
- F169 F1
- 2124 H12
- F183 I1
- 2125 I14
- F186 E9
- 2126 I5
- F203 D2
- 2128 I6
- F205 E1
- 2129 I11
- F208 G13
- 2130 E3
- F209 G13
- 2201 I7
- F210 G13
- 3100 A12
- F228 D1
- 3101 A13
- F233 D9
- 3102 A12
- F235 I1
- 3103 A4
- F241 G14
- 3104 A12
- F242 G13
- 3105 A5
-
- 3106 B13
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- 3107 A9
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- 3108 A10
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- 3111 C12
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- 3115 C13
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- 3125 G10
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- 3134 H13
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- 3135 H4
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- 3136 H7
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- 3137 I4
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- 3138 I11
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- 3139 I14
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- 3140 I6
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- 3144 I5
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- 3146 F4
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- 3147 F4
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- 3149 F5
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- 3150 H8
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- 3158 H1
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- 3159 E10
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- 6100 A13
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- 6101 E4
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- 6200 I3
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- 7101 A13
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- 7104 C5
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- 7105 H12
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- 7106 I12
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- 7107 I13
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- 7108 I6
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- 7109 I3
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- 7110 I7
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- 7112 E3
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- F103 D5
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- F108 A5
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- F109 A9
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- F119 C7
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- F120 C7
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- F123 C8
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- F124 C8
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- F125 C5
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- F130 C7
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- F131 C7
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- F132 C8
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- F138 D5
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- F139 D5
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- F140 H8
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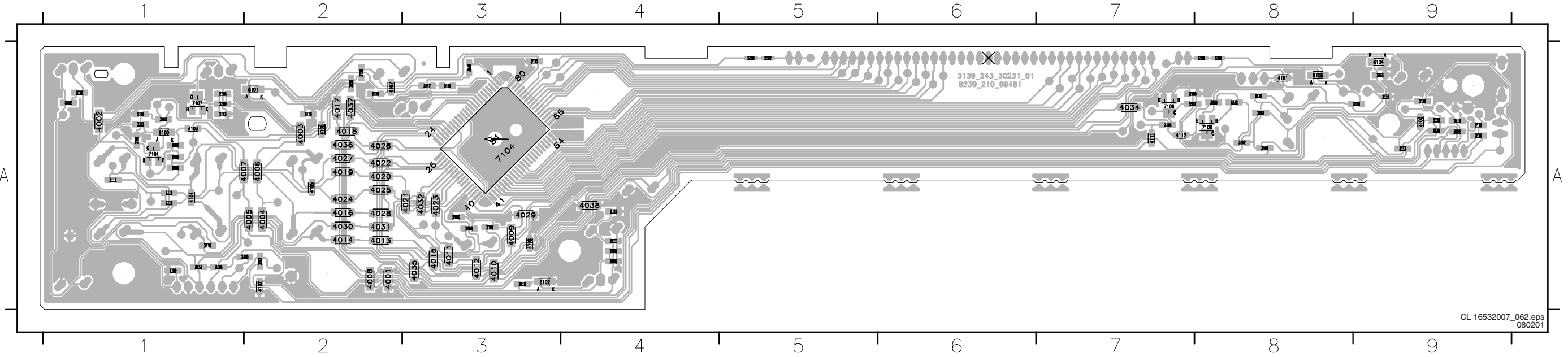
Layout Display Board (component side)

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1002 A1 1101 A8 1106 A9 1108 A8 1109 A8 1113 A4 1115 A9 2108 A6 2124 A8 2129 A2 2130 A6 7106 A8 7112 A6 9212 A9

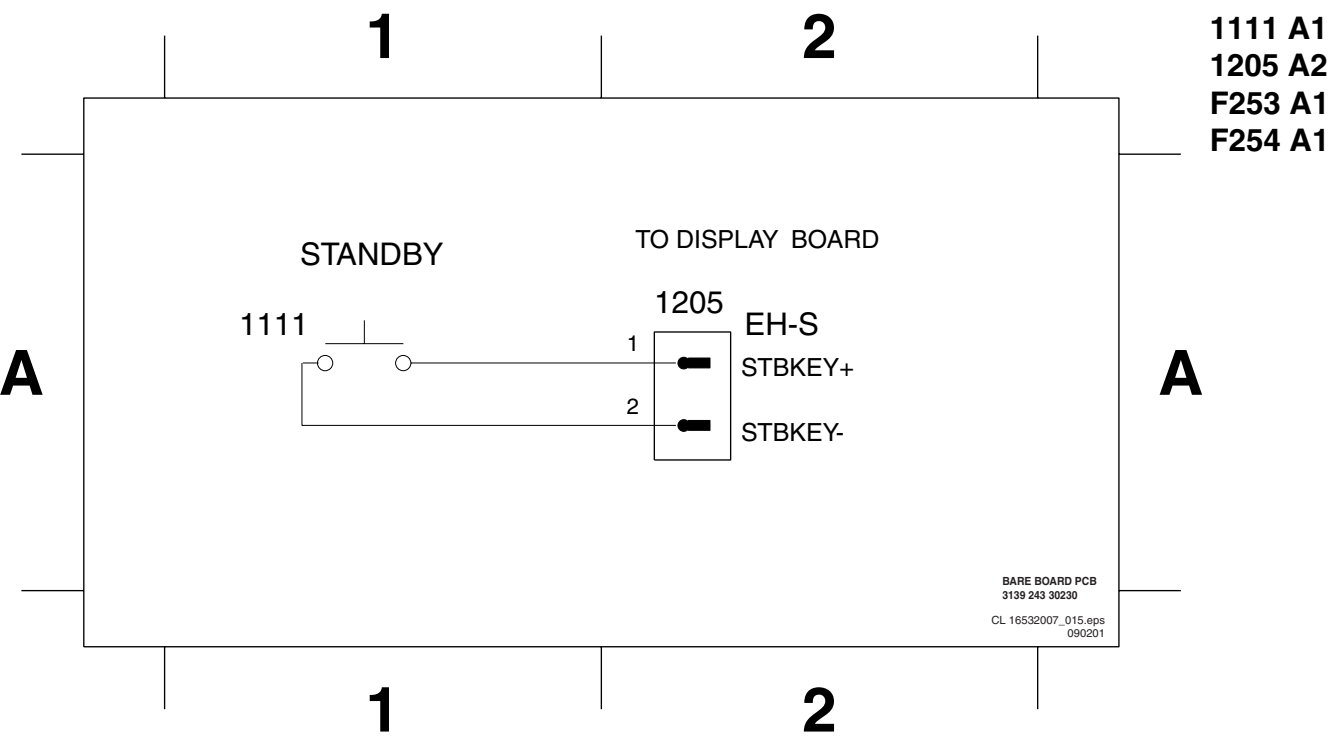


Layout Display Board (bottom side)

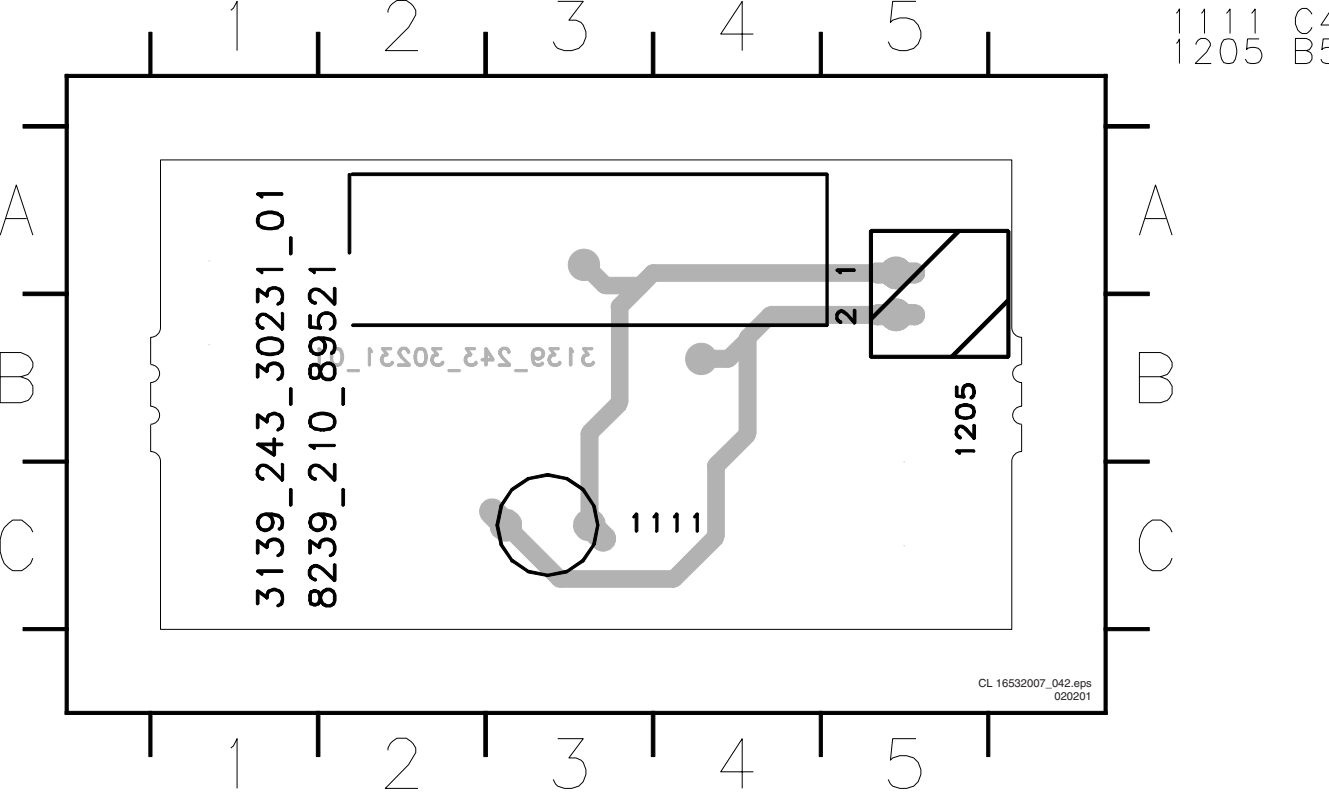
2100 A1 2109 A4 2116 A9 3100 A1 3105 A8 3110 A1 3115 A1 3122 A9 3133 A8 3138 A2 3144 A9 3150 A9 3159 A3 4005 A2 4010 A3 4015 A3 4020 A2 4025 A2 4030 A2 4036 A2 4102 A2 4107 A2 6101 A2 7104 A3
2101 A1 2110 A4 2122 A1 3101 A1 3106 A1 3111 A1 3116 A1 3123 A9 3134 A8 3139 A2 3145 A9 4006 A2 4011 A3 4016 A2 4021 A3 4026 A2 4031 A2 4103 A1 4108 A3 6102 A3 7107 A1
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2107 A3 2114 A9 2128 A7 3103 A8 3108 A5 3113 A9 3118 A1 3125 A9 3136 A8 3141 A2 3147 A3 4008 A2 4013 A2 4018 A2 4023 A3 4028 A2 4105 A2 4110 A7 6104 A9 7109 A8
2108 A4 2115 A9 2201 A7 3104 A1 3109 A8 3114 A1 3119 A1 3126 A9 3137 A8 3142 A3 3148 A3 4009 A3 4014 A2 4019 A2 4024 A2 4029 A3 4035 A3 4106 A2 4111 A7 6105 A8 7110 A8



Bare board Standby



Layout Bare board Standby



8. Alignments

No electrical alignments available

9. Circuit descriptions and list of abbreviations

9.1 Current mode Power Supply

9.1.1 Introduction

The switch mode power supply (SMPS) is mains isolated. The control IC 7145 (UC 3842A) produces pulses to drive the power switch, Mosfet 7125. Power supply regulation is achieved by using duty cycle control at fix frequency ,of approximately 58KHz ,determined by the RC timing components.

9.1.2 General Description of UC 3842A

The UC 3842 is a high performance fixed frequency current mode controller that is specifically designed for off-line and

DC-to-DC converter application. This integrated circuit feature a trimmed oscillator for precise duty cycle control, a temperature compensated reference, high gain error amplifier, current sensing comparator and a high current totem pole output ideally suited for driving a power MOSFET. Also included are protective features consisting of input and reference undervoltage lockouts each with hysteresis, cycle by cycle current limiting, programmable output deadtime and a latch for single pulse metering.

A representative Block diagram and Pin function description is shown in Fig 1 and Fig 2 respectively.

9.1.3 BLOCK DIAGRAM

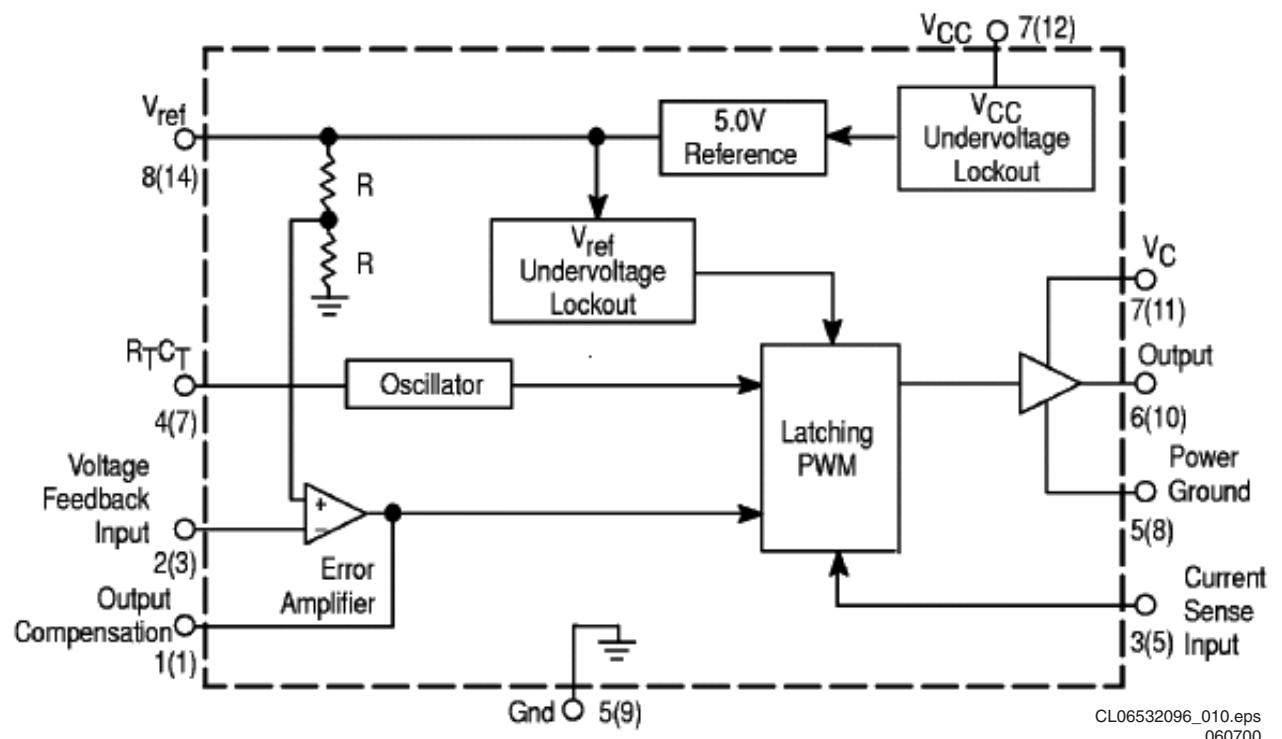


Figure 9-1

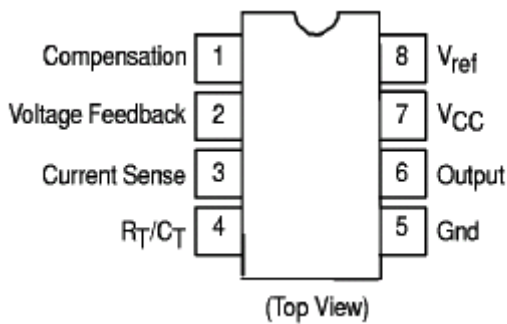
9.1.4 Pin function description

Pin		Function	Description
8-Pin	14-Pin		
1	1	Compensation	This pin is Error Amplifier output and is made available for loop compensation.
2	3	Voltage Feedback	This is the inverting input of the Error Amplifier. It is normally connected to the switching power supply output through a resistor divider.
3	5	Current Sense	A voltage proportional to inductor current is connected to this input. The PWM uses this information to terminate the output switch conduction.
4	7	R_T/C_T	The Oscillator frequency and maximum Output duty cycle are programmed by connecting resistor R_T to V_{ref} and capacitor C_T to ground. Operation to 500 kHz is possible.
5	–	Gnd	This pin is the combined control circuitry and power ground (8-pin package only).
6	10	Output	This output directly drives the gate of a power MOSFET. Peak currents up to 1.0 A are sourced and sunk by this pin.
7	12	V_{CC}	This pin is the positive supply of the control IC.
8	14	V_{ref}	This is the reference output. It provides charging current for capacitor C_T through resistor R_T .
–	8	Power Ground	This pin is a separate power ground return (14-pin package only) that is connected back to the power source. It is used to reduce the effects of switching transient noise on the control circuitry.
–	11	V_C	The Output high state (V_{OH}) is set by the voltage applied to this pin (14-pin package only). With a separate power source connection, it can reduce the effects of switching transient noise on the control circuitry.
–	9	Gnd	This pin is the control circuitry ground return (14-pin package only) and is connected back to the power source ground.
–	2,4,6,13	NC	No connection (14-pin package only). These pins are not internally connected.

CL06532096_011.eps
060700

Figure 9-2

9.1.5 Pin connection



CL06532096_012.eps
060700

Figure 9-3

9.1.6 Output voltages

- +12V (For Display board, Monoboard, A/V board) created via D6241, C2240, L5240, C2232 (This voltage is also present during standby)
- +5V_ stbby (For Display board, Standby PCB, Monoboard) created from +6V via R3233 and D6233 (This voltage is also present during standby)
- +6V_ stbby (Reserve) created from D6230, C2230, L5231 (This voltage is also present during standby)
- +5V (For Monoboard, A/V board) derive from +6V stbby via Mosfet 7238, C2239 and it will be switch off via R3235, T7235 during Standby.
- 5V (For Monoboard, A/V board) created from D6250, C2250, C2259, L5222, R3259, T7255 regulator circuit and will switch off via R3258, T7257 during standby (control signal Standby is HIGH)

- 3V3 (For Monoboard, A/V board) The 3V3 power supply is regulated by the control loop comprising of 7201, 7131 and 7145 of the switch mode PSU. This voltage is also present during standby
- 40V (For Display board) created via D6261, R3260, L5260, C2260 This will not be present during standby

9.2 CONTROL CIRCUITRY

9.2.1 Mains input circuit

The mains voltage is rectified by bridge rectifier (D6118 to D6121) and filter by C2121. The DC voltage across C2121 is the DC input voltage ,approximately 300V, is the DC input to pin 1 of transformer T5131. The mains input also consists of a lighting protection R3120.

9.2.2 Start-up and takeover circuitry

The start-up circuitry consist R3123, R3134, R3111, D6129, C2134 and with the mains voltage input, the C2134 will charge via R3123 and R3134. When the voltage at pin 7 of IC7145 reaches the start-up threshold of min 14.5V, IC7145 will start-up and the control circuit start to operate. After start-up, the max sinking current of 17mA is required by IC7145 which is not able to be delivered by the start-up circuitry, so the takeover circuitry must be present. If the takeover circuit does not occurred, the supply voltage at pin 7 will decrease gradually till it reaches the IC7145 minimal operating voltage of 8.5V and the IC will switch off. The whole operation cycle will repeat itself with audible hiccup sound if takeover is not present.

The takeover circuit comprises of D6133, R3135, I5135, C2134. During the control circuit start-up, the voltage across winding pin 7 and 9 will gradually built up and charged C2134

via D6133, R3135 which will takeover the supply voltage of T7145 at pin 7.

it goes into the overvoltage protection and a complete restart sequence is required.

9.2.3 Secondary voltage sensing

The secondary voltage regulating circuit comprise of the opto-coupler 7131 which isolate the error signal from the control IC7145 ,on the primary side, and a reference component 7201 (TL431). The 7201 can be represented by two components:

- A very stable and accurate reference diode
- A high gain amplifier

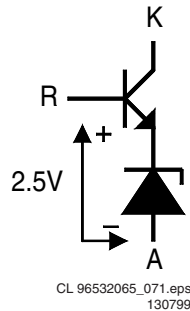


Figure 9-4

When the output voltage increases, due to a reduction in the load, the voltage across R3205 and R3206 increases to above the internal reference voltage of about 2.5V then TL431 conduct. The current through the opto-coupler 7131 will increase due to the fact that the series resistor in 7201 decreases. This result in a increase of voltage to pin 2 of IC7145, thus reducing the on-time of FET 7125. In the event of a decrease in output voltage (increase in load),the control circuit will operate in the opposite way to the explanation above.

9.2.4 Primary current sensing

The current through the FET 7125 resulting in a voltage drop across R3126,R3127,R3128 which is couple to pin 3 of IC7145,current sense input.The higher the input voltage, the more the primary current is limited. In this way the maximum output power of the power supply is limited.

9.2.5 Undervoltage protection

Two undervoltage lockout comparators have been incorporated to guarantee that the IC7145 is fully functional before the output stage is enable. The supply voltage at pin 7 and reference voltage at pin 8 of IC7145 are each monitored by separate comparators with built-in hysteresis. If the supply voltage at pin 7 of IC7145 drops below 10V (typical), due to a secondary voltage is short-circuit or excessive load, the drive pulse at pin 6 of IC7145 will be disabled and the controller will switch off the complete SMPS.

Remarks : In the event of the overvoltage situation remaining present, the SMPS will go in sequence of protection,start- up cycle, protection and the cycle repeats. This effect is highly audible.

9.2.6 Overvoltage protection

The overvoltage circuitry comprising of D6141,R3139, R3150, R3141,T7141, T7150 which is used to detect an over voltage situation on the secondary side of the transformer. After start-up, when the voltage across C2135 exceeds 18V,the overvoltage circuit will trigger the internal latch circuit, pin 1 of IC7145 and the output buffer is disabled and

9.3 List of abbreviations

B	Buffered Video input Blue from DVD monoboard
BC_AUX	Blue or Chroma input from AUX-scart
BC_TV	Blue or Chroma output to TV-scart
C_ENC	Buffered Chroma input from DVD monoboard
CVBS	Buffered Composite video input from DVD monoboard
DC_OFF	Control signal to switch off $\bar{u}8V_{stby}$ and $+12V_{stby}$ during standby
DIG_OUT	Digital out
FBIN_AUX	Fast blanking input from AUX-scart
FBOUT_TV	Fast blanking output to TV-scart
G	Buffered Video input Green from DVD monoboard
GIN_AUX	Video input Green from AUX-scart
GOUT_TV	Video output Green to TV-scart
HP_L	Audio output left to headphone and audio scart switch TEA6420
HP_R	Audio output right to headphone and audio scart switch TEA6420
KILL	Kill control signal for audio outputs and for soft mute of DAC
LIN_AUX	Audio input left from AUX-scart
LIN_TV	Audio input left from TV-scart
LOUT_AUX	Audio output left to AUX-scart
LOUT_TV	Audio output left to TV-scart
LRCLK	Left/Right clock
PCM_CLK	Audio system clock for DAC
PCM_OUT0	Audio serial output data
R	Buffered Video input Red from DVD monoboard
RCIN_TV	Red or Chroma input from TV-scart
RCOUT_TV	Red or Chroma output to TV-scart
RIN_AUX	Audio input right from AUX-scart
RIN_TV	Audio input right from TV-scart
ROUT_AUX	Audio output right to AUX-scart
ROUT_TV	Audio output right to TV-scart
SCL	I2C bus clock
SCLK	Audio serial bit clock
SDA	I2C bus data
SELECT	Control signal for video scart switches; high = TV ,low = AUX
SELECT_HIGH	Control signal for switching fast blanking and slow blanking signals; high = TV ,low = AUX
SLB_AUX	Slow blanking control signal from AUX-scart
SLB_TV	Slow blanking control signal to TV-scart
STANDBY	Control signal from ST15505 used to switch off $\bar{u}8V_{stby}$ and $+12V_{stby}$ during standby.
STEREO_L	Audio cinch output left
STEREO_R	Audio cinch output right
Y_ENC	Buffered Luma input from DVD monoboard
YCVBSIN_AUX	Luma or CVBS input from AUX-scart
YCVBSIN_TV	Luma or CVBS input from TV-scart
YCVBSOUT_AUX	Luma or CVBS output to AUX-scart
YCVBSOUT_TV	Luma or CVBS output to TV-scart
0/6/12	Scart switch control signal A/V board. 0V : loop through (AUX to TV), 6V : play 16:9 format, 12V : play 4:3 format

10. Spare parts list

DVD612 /001

Various

0010	3139 247 52811	CAB FRONT DVD612/00X PPT
0025	3139 247 52941	BTN STANDBY DVD612/00X PPT
0030	3139 247 52851	WINDOW DVD612/00X PPT
0040	3139 247 52911	BTN CONTROL DVD612/00X PPT
0200	3139 247 52771	FRONT ASSY DVD612/00X
0224	3139 247 53011	BACK PLATE DVD612/00X PPT
0232	3139 247 52991	COVER TOP DVD612/00X PPT
0261	4822 321 11139	POWER CORD
0333	4822 321 11357	AUDIO CORD SET
0382	3111 170 21992	SCART CABLE (L=1.10M) BMS
0384	3139 228 87051	PROD.ASSY RC19133001/01 PACKED
0387	3139 246 10681	IFU DVD612/00X
1002	3139 248 80861	PCBAS AV DVD612 EU
1003	3139 248 80941	PCBAS FR DVD612 EU
1005	3122 427 22572	PSU DVD VFM EURO
1014	3104 157 11190	CWAS FLEX DVD 22 130 32S

AV PWB

Various

1002	2422 025 12352	CON BM EURO H 21P F BK GRND-L
1005	4822 265 11566	3P YKC21-3930
1010	2422 025 16526	CON BM V 22P F 1.00 FFC 0.3 R
1011	4822 267 31729	

—II—

2101	4822 124 40207	100μF 20% 25V
2103	4822 124 40207	100μF 20% 25V
2104	4822 124 40207	100μF 20% 25V
2105	4822 124 40207	100μF 20% 25V
2106	4822 126 14305	100nF 10% 16V 0603
2109	4822 124 40207	100μF 20% 25V
2111	4822 126 14494	22nF 10% 25V 0603
2112	4822 122 31765	100pF 2% 63V
2115	4822 126 13883	220pF 5% 50V
2116	4822 126 13883	220pF 5% 50V
2117	4822 126 13883	220pF 5% 50V
2200	4822 126 14305	100nF 10% 16V 0603
2201	4822 124 80231	47μF 20% 16V
2202	4822 124 80231	47μF 20% 16V
2203	4822 126 14305	100nF 10% 16V 0603
2204	4822 124 23432	100μF 20% 10V
2205	4822 124 40207	100μF 20% 25V
2206	4822 124 80231	47μF 20% 16V
2207	4822 126 14305	100nF 10% 16V 0603
2208	4822 124 11947	10μF 20% 16V
2209	3198 017 44740	0603 10V 470nF COL
2210	4822 126 14305	100nF 10% 16V 0603
2211	4822 124 40207	100μF 20% 25V
2212	3198 016 31020	0603 25V 1nF
2213	4822 126 14305	100nF 10% 16V 0603
2214	4822 122 31765	100pF 2% 63V
2215	3198 016 31020	0603 25V 1nF
2216	4822 124 11947	10μF 20% 16V
2226	4822 124 40207	100μF 20% 25V
2227	4822 124 11947	10μF 20% 16V
2228	3198 016 31020	0603 25V 1nF
2229	4822 122 31765	100pF 2% 63V
2230	3198 016 31020	0603 25V 1nF
2232	4822 124 11947	10μF 20% 16V
2233	4822 122 33777	47pF 5% 63V
2234	4822 126 14305	100nF 10% 16V 0603
2235	4822 122 33777	47pF 5% 63V
2236	4822 124 40207	100μF 20% 25V
2237	4822 124 80195	470μF 20% 10V
2243	4822 126 13883	220pF 5% 50V
2244	4822 126 13883	220pF 5% 50V
2249	4822 122 33761	22pF 5% 50V

—□—

3100	4822 051 20008	0Ω jumper . (0805)
3111	4822 051 30271	270Ω 5% 0.062W
3113	4822 051 30101	100Ω 5% 0.062W
3114	4822 051 30101	100Ω 5% 0.062W
3115	4822 117 12968	820Ω 5% 0.62W
3116	4822 051 30682	6k8 5% 0.062W
3117	4822 051 30222	2k2 5% 0.062W
3118	4822 051 30681	680Ω 5% 0.062W
3119	4822 051 30472	4k7 5% 0.062W
3120	4822 051 30759	75Ω 5% 0.062W
3121	4822 051 30271	270Ω 5% 0.062W
3122	4822 051 30101	100Ω 5% 0.062W
3123	4822 051 30101	100Ω 5% 0.062W
3124	4822 051 30759	75Ω 5% 0.062W
3125	4822 051 30682	6k8 5% 0.062W
3126	4822 117 12968	820Ω 5% 0.62W
3127	4822 051 30222	2k2 5% 0.062W
3128	4822 051 30681	680Ω 5% 0.062W
3129	4822 051 30472	4k7 5% 0.062W
3130	4822 051 30221	220Ω 5% 0.062W
3131	4822 051 30271	270Ω 5% 0.062W
3132	4822 051 30101	100Ω 5% 0.062W
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30759	75Ω 5% 0.062W
3135	4822 117 12968	820Ω 5% 0.62W
3136	4822 051 30682	6k8 5% 0.062W
3137	4822 051 30222	2k2 5% 0.062W
3138	4822 051 30472	4k7 5% 0.062W
3139	4822 051 30681	680Ω 5% 0.062W
3146	4822 051 30759	75Ω 5% 0.062W
3147	4822 051 30223	22k 5% 0.062W
3148	4822 051 30102	1k 5% 0.062W
3149	4822 116 83884	47k 5% 0.5W
3169	4822 051 30102	1k 5% 0.062W
3170	4822 051 30102	1k 5% 0.062W
3202	4822 051 30681	680Ω 5% 0.062W
3203	4822 116 52228	680Ω 5% 0.5W
3204	4822 116 52195	47Ω 5% 0.5W
3205	4822 117 12902	8k2 1% 0.063W 0603
3206	4822 051 30472	4k7 5% 0.062W
3207	4822 117 11152	4Ω7 5%
3208	4822 051 30103	10k 5% 0.062W
3210	4822 051 30103	10k 5% 0.062W
3211	4822 051 30272	2k7 5% 0.062W
3212	4822 051 30103	10k 5% 0.062W
3213	4822 051 30272	2k7 5% 0.062W
3225	4822 051 30681	680Ω 5% 0.062W
3226	4822 051 30103	10k 5% 0.062W
3227	4822 051 30272	2k7 5% 0.062W
3228	4822 116 52228	680Ω 5% 0.5W
3229	4822 116 52263	2k7 5% 0.5W
3230	4822 051 30103	10k 5% 0.062W
3231	4822 117 12902	8k2 1% 0.063W 0603
3232	4822 051 30472	4k7 5% 0.062W
3233	4822 051 30103	10k 5% 0.062W
3235	4822 116 52175	100Ω 5% 0.5W
3236	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM
3237	4822 117 11152	4Ω7 5%
3238	4822 051 30472	4k7 5% 0.062W
3239	4822 117 13632	100k 1% 0603 0.62W
3240	4822 051 30271	270Ω 5% 0.062W
3241	4822 051 30101	100Ω 5% 0.062W
3242	4822 051 30759	75Ω 5% 0.062W
3243	4822 117 12968	820Ω 5% 0.62W
3244	4822 051 30682	6k8 5% 0.062W
3245	4822 051 30222	2k2 5% 0.062W
3246	4822 051 30472	4k7 5% 0.062W
3247	4822 051 30681	680Ω 5% 0.062W
3248	4822 051 30759	75Ω 5% 0.062W
3249	4822 051 30222	2k2 5% 0.062W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)

—W—

5200	4822 157 70601	100μH (920927085A)
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—II—

6102	4822 130 11522	UDZ15B
6103	4822 130 11522	UDZ15B

Front PWB

Various




1100	4822 276 13775	SWITCH
1101	4822 276 13775	SWITCH
1102	4822 276 13775	SWITCH
1106	4822 276 13775	SWITCH
1107	4822 276 13775	SWITCH
1108	4822 276 13775	SWITCH
1109	4822 276 13775	SWITCH
1110	2422 540 98423	RES CER 8MHz CSTS*Mhz 03
1111	4822 276 13775	SWITCH
1113	3139 240 50021	FTD 11-MT-126GNK DVD602
1115	4822 267 10565	4P
1117	2412 020 00724	CON BM V 2P M 2.50 EH B
1118	4822 276 10637	B5B-PH-K (5P)
1205	2422 025 12488	CON BM H 2P M 2.50 EH B



—II—

2100	4822 126 13883	220pF 5% 50V
2101	4822 126 13883	220pF 5% 50V
2105	4822 126 14549	33nF 16V O6O3
2106	4822 124 40207	100μF 20% 25V
2107	3198 024 44730	47nF 50V 0603
2108	3198 024 44730	47nF 50V 0603
2109	3198 024 44730	47nF 50V 0603
2110	3198 024 44730	47nF 50V 0603
2111	3198 024 44730	47nF 50V 0603
2114	4822 122 33761	22pF 5% 50V
2115	4822 122 33761	22pF 5% 50V
2116	4822 126 14549	33nF 16V O6O3
2122	4822 126 14549	33nF 16V O6O3
2123	4822 124 40207	100μF 20% 25V
2124	3198 028 42290	EL 5MM 35V 22μF PM20 COL A
2125	4822 122 33761	22pF 5% 50V
2126	4822 124 11947	10μF 20% 16V
2128	5322 126 11578	1nF 10% 50V 0603
2129	3198 028 42290	EL 5MM 35V 22μF PM20 COL A
2130	4822 124 41751	47μF 20% 50V
2201	4822 126 14549	33nF 16V O6O3

—□—

3100	4822 051 30223	22k 5% 0.062W
3101	4822 051 30273	27k 5% 0.062W
3102	4822 117 12925	47k 1% 0.063W 0603
3103	4822 117 13608	4.7Ω 5% 0603 0.0016W
3104	4822 117 13632	100k 1% 0603 0.62W
3105	4822 117 13613	2Ω2 5% 0603
3106	4822 051 30221	220Ω 5% 0.062W
3107	4822 117 13608	4.7Ω 5% 0603 0.0016W
3108	4822 117 13613	2Ω2 5% 0603
3109	4822 051 30472	4k7 5% 0.062W
3110	4822 051 30472	4k7 5% 0.062W
3111	4822 051 30472	4k7 5% 0.062W
3112	4822 051 30472	4k7 5% 0.062W
3113	4822 051 30472	4k7 5% 0.062W
3114	4822 051 30109	10Ω 5% 0.062W
3115	4822 051 30472	4k7 5% 0.062W
3118	4822 051 30103	10k 5% 0.062W
3119	4822 051 30103	10k 5% 0.062W
3120	4822 051 30471	470Ω 5% 0.062W
3121	4822 051 30472	4k7 5% 0.062W
3122	4822 051 30109	10Ω 5% 0.062W
3123	4822 051 30103	10k 5% 0.062W
3125	4822 051 30109	10Ω 5% 0.062W
3130	4822 051 30109	10Ω 5% 0.062W
3132	4822 051 30331	330Ω 5% 0.062W
3133	4822 051 30109	10Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3136	4822 051 30102	1k 5% 0.062W
3138	4822 051 30471	470Ω 5% 0.062W
3139	4822 051 30472	4k7 5% 0.062W
3140	4822 051 30103	10k 5% 0.062W
3143	4822 051 30103	10k 5% 0.062W
3144	4822 117 13632	100k 1% 0603 0.62W
3146	4822 051 30103	10k 5% 0.062W
3147	4822 051 30103	10k 5% 0.062W
3148	4822 051 30101	100Ω 5% 0.062W
3149	4822 051 30101	100Ω 5% 0.062W

3155	4822 051 30008	0Ω jumper
3156	4822 051 30008	0Ω jumper
3159	4822 051 30472	4k7 5% 0.062W
		
6100	4822 130 11397	BAS316
6101	9965 000 04709	UD26.2BTE-17
6102	4822 130 10837	UDZS8.2B
6104	4822 130 11397	BAS316
		
7101	4822 130 60511	BC847B
7104	3104 123 94532	TMP87CH74F-1E29-V2.18-DVDSLAVE
7105	4822 130 40981	BC337-25
7106	4822 130 40854	BC327
7107	4822 130 60511	BC847B
7108	4822 130 60511	BC847B
7110	9322 155 98667	IR RECEIVER TSOP2236YA1(VISH)L
7112	4822 209 31257	MC79L24ACP
PSU PWB		
Various		
0101▲	4822 265 20723	B2P3-VH
0120▲	4822 265 11253	FUSE HOLDER 2P
0205	2422 025 08333	CON BM V 12P M 2.50 EH B
0208	4822 267 10565	4P
1120▲	4822 253 30383	19181 (2,5A)
—II—		
2120▲	4822 121 10711	100nF 20% 275V
2121	2222 151 90048	47μF 20% 400V
2127	4822 122 50116	470pF 10% 1KV
2130▲	4822 126 13841	1nF 20% 250V
2131▲	4822 126 13841	1nF 20% 250V
2134	4822 124 11566	47μF 20% 50V
2135	4822 124 22652	2.2μF 20% 50V
2141	4822 124 22652	2.2μF 20% 50V
2143	4822 126 14585	100nF 10% 50V
2145	5322 126 10223	4.7nF 10% 63V
2146	4822 126 14585	100nF 10% 50V
2150	4822 126 14585	100nF 10% 50V
2156	5322 122 31863	63V 330pF PM5
2157	5322 122 32268	63V 470P PM5
2202	4822 126 14585	100nF 10% 50V
2210	2020 012 93728	EL YK 10V S 2200μF PM20 B
2230	2020 012 93757	EL YK 10V S 1000μF PM20 B
2232	4822 124 81021	100μF 20% 16V
2235	4822 126 14549	33nF 16V O6O3
2238	4822 124 81021	100μF 20% 16V
2239	4822 124 81021	100μF 20% 16V
2240	4822 124 81147	470μF 20% YK 25V
2250	4822 124 41545	220μF 20% 16V
2259	4822 124 81021	100μF 20% 16V
2260	4822 124 81151	22μF 20V
2299	5322 122 32654	63V 22nF PM10 R
		
3111	4822 116 52176	10Ω 5% 0.5W
3120▲	2322 595 90023	VDR DC 1M A/423V S MAX 800V B
3123	4822 116 52291	56k 5% 0.5W
3125	4822 051 20223	22k 5% 0.1W
3126	4822 116 81801	3Ω6 5% 0.5W
3127	4822 116 80176	1Ω 5% 0.5W
3128	4822 116 80176	1Ω 5% 0.5W
3131	4822 051 10274	270k 2% 0.25W
3132▲	4822 052 11108	1Ω 5% 0.5W
3134	4822 116 52291	56k 5% 0.5W
3135	4822 116 52182	15Ω 5% 0.5W
3136	4822 051 10274	270k 2% 0.25W
3137	4822 117 10837	100k 1% 0.1W
3139	4822 051 20479	47Ω 5% 0.1W
3140	4822 116 52226	560Ω 5% 0.5W
3141	4822 117 11507	6k8 1% 0.1W
3143	3198 021 53630	36k 5% 0.1W 0805
3145	4822 117 10965	18k 1% 0.1W
3146	4822 117 11148	56k 1% 0.1W
3150	4822 117 11139	1k5 1% 0.1W
3153	4822 116 83933	15k 1% 0.1W

3154	4822 117 11139	1k5 1% 0.1W
3155	4822 116 52219	330Ω 5% 0.5W
3156	4822 051 20339	33Ω 5% 0.1W
3201	4822 116 52176	10Ω 5% 0.5W
3202	4822 117 11141	1k8 1% 0.1W
3204	4822 117 11504	270Ω 1% 0.1W
3205	4822 117 11145	4k7 1% 0.1W
3206	4822 051 20391	390Ω 5% 0.1W
3207	4822 051 10102	1k 2% 0.25W
3233	4822 052 10228	2Ω2 5% 0.33W
3235	4822 116 83933	15k 1% 0.1W
3254	4822 051 30223	22k 5% 0.062W
3255	5322 117 13049	470Ω 1% 0.063W 0603 RC22H
3256	5322 117 13053	6k8 1% 0.063W 0603 RC22H
3257	4822 051 30563	56k 5% 0.062W
3258	4822 051 30103	10k 5% 0.062W
3259	4822 051 20102	1k 5% 0.1W
3260	4822 051 20101	100Ω 5% 0.1W
3262	4822 116 83872	220Ω 5% 0.5W
3263	4822 116 52249	1k8 5% 0.5W
4xxx	4822 051 10008	0Ω 5% 0.25W (1206)
4xxx	4822 051 20008	0Ω 5% 0.25W (0805)
		
5120▲	4822 157 11846	
5121▲	4822 157 53348	TER CHOKE ASSY CU15D3
5125	4822 157 11411	100mH z
5131▲	3128 138 39631	SM TRANSFORMER - CT282D4
5135	4822 157 70698	27μH
5210	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5222▲	4822 156 20966	47 μH
5231	2422 535 94638	IND FXD LHL08 S 6U8 PM20 A
5240	4822 157 51195	1 μH 20% 4X9.8MM AXIAL
5260	4822 157 11517	10μH 5% 2.3X3.4
→I←		
6118	4822 130 31603	1N4006
6119	4822 130 31603	1N4006
6120	4822 130 31603	1N4006
6121	4822 130 31603	1N4006
6129	9340 548 67115	DIO REG SM PDZ22B (PHSE) R
6132	4822 130 30842	BAV21
6133	4822 130 30842	BAV21
6140	4822 130 30621	1N4148
6141	4822 130 11152	UDZ18B
6150	4822 130 11148	UDZ4.7B
6210	4822 130 11584	BYW98-200-C1
6230	4822 130 41602	BYW95C
6233	4822 130 34174	BZX79-B4V7
6241	4822 130 11584	BYW98-200-C1
6250	4822 130 42488	BYD33D
6261	4822 130 42606	BYD33J
		
7125	4822 130 11417	STP3NB60FP
7131▲	9322 149 04682	OPT CP TCET1102(G) (VISH) L
7141	4822 130 44568	BC557B
7145	9322 145 88682	UC3842A
7150	4822 130 44257	BC547
7201	4822 209 81397	TL431CLPST
7235	4822 130 42705	BC847
7255	4822 130 40855	BC337
7256	5322 130 42756	BC857C
7257	5322 130 42756	BC857C
VAL 6011		
Various		
0001	9305 023 61101	VAL6011/01
MONO PWB		
Various		
1104	2422 025 15963	CON BM H 24P F 0.50 FFC SMD R

1106	2422 025 16158	CON BM H 8P F 1.00 FFC 0.3 R
1205	2422 540 98428	RES CER SM 8M467 CSTCC8.46MHz R
1300	2422 540 98426	RES CER SM 6MHz CSTCC6.00MHz R
1301	4822 267 51454	CONN. 11P FEMALE
1603	2422 025 16389	CON BM V 22P F 1.00 FFC 0.3 R
1604	2422 025 16388	CON BM V 16P F 1.00 FFC 0.3 R
—II—		
2100	4822 126 14305	100nF 10% 16V 0603
2101	4822 126 14305	100nF 10% 16V 0603
2103	4822 124 80151	47μF 16V
2104	4822 126 13193	4.7nF 10% 63V
2105	4822 122 33761	22pF 5% 50V
2107	4822 126 13956	68pF 5% 63V CASE 0603
2108	4822 126 14315	390pF 5% 50V 0603
2109	2020 552 95697	
2110	2222 861 15222	63V 2N2 PM5
2111	4822 126 14305	100nF 10% 16V 0603
2112	5322 126 11578	1nF 10% 50V 0603
2113	4822 126 14305	100nF 10% 16V 0603
2114	4822 122 31765	100pF 2% 63V
2115	4822 126 14305	100nF 10% 16V 0603
2116	4822 126 14305	100nF 10% 16V 0603
2117	4822 126 14305	100nF 10% 16V 0603
2118	3198 017 42230	0603 50V 22nF COL
2119	3198 017 42230	0603 50V 22nF COL
2120	4822 126 14305	100nF 10% 16V 0603
2121	4822 126 13879	220nF 20% 16V
2122	3198 017 42230	0603 50V 22nF COL
2123	4822 126 14305	100nF 10% 16V 0603
2124	4822 126 14305	100nF 10% 16V 0603
2125	4822 126 14305	100nF 10% 16V 0603
2126	4822 126 14305	100nF 10% 16V 0603
2127	4822 126 14305	100nF 10% 16V 0603
2128	4822 126 14508	180pF 5% 50V 0603
2129	4822 126 14508	180pF 5% 50V 0603
2130	4822 122 33761	22pF 5% 50V
2131	4822 126 14494	22nF 10% 25V 0603
2136	4822 126 14305	100nF 10% 16V 0603
2137	4822 126 14305	100nF 10% 16V 0603
2138	4822 126 14305	100nF 10% 16V 0603
2139	4822 126 14305	100nF 10% 16V 0603
2140	4822 126 14241	0603 50V 330P COL R
2141	4822 122 33761	22pF 5% 50V
2142	5322 126 11583	10nF 10% 50V 0603
2143	4822 126 13883	220pF 5% 50V
2144	4822 126 13883	220pF 5% 50V
2145	4822 126 13883	220pF 5% 50V
2146	4822 126 14305	100nF 10% 16V 0603
2203	4822 126 14305	100nF 10% 16V 0603
2204	4822 126 14305	100nF 10% 16V 0603
2205	4822 126 14305	100nF 10% 16V 0603
2206	4822 126 14549	33nF 16V O6O3
2207	5322 126 11578	1nF 10% 50V 0603
2208	4822 126 14305	100nF 10% 16V 0603
2209	4822 126 14305	100nF 10% 16V 0603
2210	5322 126 11578	1nF 10% 50V 0603
2212	4822 126 14305	100nF 10% 16V 0603
2213	4822 126 14305	100nF 10% 16V 0603
2214	3198 017 42230	0603 50V 22nF COL
2215	4822 124 23237	22μF 6.3V
2216	5322 126 11578	1nF 10% 50V 0603
2226	4822 126 14305	100nF 10% 16V 0603
2227	4822 126 14305	100nF 10% 16V 0603
2228	4822 126 14305	100nF 10% 16V 0603
2300	4822 126 14305	100nF 10% 16V 0603
2301	4822 126 14305	100nF 10% 16V 0603
2302	4822 126 14305	100nF 10% 16V 0603
2303	4822 124 80349	47μF 20% 6.3V
2304	3198 017 42230	0603 50V 22nF COL
2305	3198 017 42230	0603 50V 22nF COL
2306	4822 124 23002	10μF 16V
2307	3198 017 42230	0603 50V 22nF COL
2309	4822 126 14305	100nF 10% 16V 0603
2310	4822 126 14305	100nF 10% 16V 0603
2314	4822 126 14305	100nF 10% 16V 0603
2315	4822 126 14305	100nF 10% 16V 0603
2318	5322 122 33861	120pF 10% 50V
2319	4822 126 11669	27pF
2401	4822 126 14305	100nF 10% 16V 0603
2402	4822 126 14305	100nF 10% 16V 0603
2403	4822 126 14305	100nF 10% 16V 0603
2404	4822 126 14305	100nF 10% 16V 0603
2405	4822 126 14305	100nF 10% 16V 0603
2406	4822 126 14305	100nF 10% 16V 0603
2407	4822 126 14305	100nF 10% 16V 0603
2408	4822 126 14305	100nF 10% 16V 0603

2409	4822 126 14305	100nF 10% 16V 0603	3108	4822 051 20228	2Ω 5% 0.1W	3201	4822 117 11151	1Ω 5%
2410	4822 126 14305	100nF 10% 16V 0603	3110	4822 051 30479	47Ω 5% 0.062W	3202	4822 117 11151	1Ω 5%
2411	4822 126 14305	100nF 10% 16V 0603	3111	5322 117 13058	150Ω 1% 0.063W 0603	3203	4822 051 30105	1M 5% 0.062W
2412	4822 126 14305	100nF 10% 16V 0603			RC22H	3204	4822 051 30331	330Ω 5% 0.062W
2413	4822 126 14305	100nF 10% 16V 0603	3112	5322 117 13021	47Ω 1% 0.063W 0603	3205	4822 051 30103	10k 5% 0.062W
2418	4822 124 12095	100μF 20% 16V			RC22H	3206	4822 051 30103	10k 5% 0.062W
2419	4822 124 80349	47μF 20% 6.3V	3114	4822 051 20228	2Ω 5% 0.1W	3208	4822 051 30272	2k7 5% 0.062W
2420	4822 124 80349	47μF 20% 6.3V	3115	4822 051 20228	2Ω 5% 0.1W	3209	4822 051 30472	4k7 5% 0.062W
2500	4822 126 14305	100nF 10% 16V 0603	3116	5322 117 13042	3k9 1% 0.063W 0603	3210	4822 051 30392	3k9 5% 0.063W 0603
2502	3198 030 74780	EL SM 35V 4U7 PM20 COL R			RC22H	3211	4822 051 30472	4k7 5% 0.062W
2503	4822 126 14305	100nF 10% 16V 0603	3117	4822 051 30181	180Ω 5% 0.062W	3212	4822 117 11152	4Ω 7 5%
2504	4822 122 31765	100pF 2% 63V	3118	4822 051 30681	680Ω 5% 0.062W	3213	4822 117 11152	4Ω 7 5%
2505	4822 126 14494	22nF 10% 25V 0603	3119	5322 117 13062	390Ω 1% 0.063W 0603	3214	4822 051 30392	3k9 5% 0.063W 0603
2506	4822 124 23002	10μF 16V			RC22H	3215	4822 051 30103	10k 5% 0.062W
2507	4822 126 14305	100nF 10% 16V 0603	3120	4822 051 30102	1k 5% 0.062W	3219	4822 051 30103	10k 5% 0.062W
2508	5322 126 11579	3.3nF 10% 63V	3121	4822 051 30273	27k 5% 0.062W	3220	4822 051 30103	10k 5% 0.062W
2509	4822 126 14241	0603 50V 330P COL R	3122	4822 051 30471	470Ω 5% 0.062W	3221	4822 051 30103	10k 5% 0.062W
2510	4822 126 14305	100nF 10% 16V 0603	3123	4822 051 30103	10k 5% 0.062W	3224	4822 051 30151	150Ω 5% 0.062W
2511	4822 126 14305	100nF 10% 16V 0603	3124	4822 051 30471	470Ω 5% 0.062W	3225	2322 704 62004	
2512	4822 126 14305	100nF 10% 16V 0603	3125	4822 051 30103	10k 5% 0.062W	3226	4822 051 30103	10k 5% 0.062W
2513	4822 126 14305	100nF 10% 16V 0603	3126	4822 051 30103	10k 5% 0.062W	3227	4822 051 30472	4k7 5% 0.062W
2514	4822 126 14305	100nF 10% 16V 0603	3127	4822 051 30223	22k 5% 0.062W	3229	4822 051 30123	12k 5% 0.062W
2515	4822 126 14305	100nF 10% 16V 0603	3128	2322 704 69109		3230	4822 051 30103	10k 5% 0.062W
2516	4822 126 14305	100nF 10% 16V 0603	3129	4822 051 30392	3k9 5% 0.063W 0603	3231	4822 051 30103	10k 5% 0.062W
2517	4822 126 14305	100nF 10% 16V 0603	3130	4822 051 20228	2Ω 5% 0.1W	3232	4822 117 13613	2Ω 2 5% 0603
2518	4822 126 14305	100nF 10% 16V 0603	3131	4822 051 20228	2Ω 5% 0.1W	3234	4822 117 12902	8k2 1% 0.063W 0603
2519	4822 126 14305	100nF 10% 16V 0603	3132	4822 051 20228	2Ω 5% 0.1W	3235	4822 117 13632	100k 1% 0603 0.62W
2520	4822 126 14305	100nF 10% 16V 0603	3133	4822 051 20228	2Ω 5% 0.1W	3236	4822 051 30472	4k7 5% 0.062W
2521	4822 126 14305	100nF 10% 16V 0603	3134	5322 117 13047	330Ω 1% 0.063W 0603	3237	4822 051 30103	10k 5% 0.062W
2522	4822 126 14305	100nF 10% 16V 0603			RC22H	3238	4822 051 30103	10k 5% 0.062W
2523	4822 126 14305	100nF 10% 16V 0603	3135	4822 117 13613	2Ω 5% 0603	3239	4822 051 30008	0Ω jumper
2524	4822 126 14305	100nF 10% 16V 0603	3137	4822 117 13613	2Ω 5% 0603	3240	4822 051 30103	10k 5% 0.062W
2525	4822 126 14305	100nF 10% 16V 0603	3138	5322 117 13053	6k8 1% 0.063W 0603	3242	4822 051 30008	0Ω jumper
2526	4822 126 14305	100nF 10% 16V 0603			RC22H	3243	4822 051 30008	0Ω jumper
2527	4822 126 14305	100nF 10% 16V 0603	3139	4822 117 12917	1Ω 5% 0.062W CASE0603	3246	4822 051 30008	0Ω jumper
2528	4822 126 14305	100nF 10% 16V 0603	3140	4822 051 30479	47Ω 5% 0.062W	3247	4822 051 30008	0Ω jumper
2529	4822 126 14305	100nF 10% 16V 0603	3141	4822 117 11152	4Ω 7 5%	3249	4822 051 30008	0Ω jumper
2530	3198 030 74780	EL SM 35V 4U7 PM20 COL R	3142	5322 117 13028	12k 1% 0.063W 0603	3250	4822 051 30008	0Ω jumper
					RC22H	3251	4822 051 30008	0Ω jumper
2531	3198 030 74780	EL SM 35V 4U7 PM20 COL R	3143	5322 117 13043	220Ω 1% 0.063W 0603	3252	4822 051 30008	0Ω jumper
					RC22H	3253	4822 051 30008	0Ω jumper
2532	4822 122 33777	47pF 5% 63V	3144	2322 704 69109		3254	4822 051 30008	0Ω jumper
2533	4822 122 33777	47pF 5% 63V	3146	4822 051 30103	10k 5% 0.062W	3255	4822 051 30008	0Ω jumper
2534	5322 126 11578	1nF 10% 50V 0603	3147	4822 051 30103	10k 5% 0.062W	3256	4822 051 30008	0Ω jumper
2535	5322 126 11578	1nF 10% 50V 0603	3148	5322 117 13022	22k 1% 0.063W 0603	3257	4822 051 30008	0Ω jumper
2600	4822 126 14494	22nF 10% 25V 0603			RC22H	3258	4822 051 30008	0Ω jumper
2601	4822 126 14247	0603 50V 1N5 COL R	3153	4822 117 12139	22Ω 5% 0.062W	3259	4822 117 11151	1Ω 5%
2602	4822 126 14247	0603 50V 1N5 COL R	3155	4822 051 30103	10k 5% 0.062W	3260	4822 117 11151	1Ω 5%
2603	4822 126 14305	100nF 10% 16V 0603	3157	4822 051 30103	10k 5% 0.062W	3261	4822 051 30102	1k 5% 0.062W
2604	4822 124 12095	100μF 20% 16V	3158	5322 117 13017	100Ω 1% 0.063W 0603	3300	4822 117 11152	4Ω 7 5%
2605	4822 126 14494	22nF 10% 25V 0603			RC22H	3301	4822 051 30105	1M 5% 0.062W
2606	4822 124 12095	100μF 20% 16V	3160	4822 051 30101	100Ω 5% 0.062W	3302	4822 051 30221	220Ω 5% 0.062W
2607	4822 124 12095	100μF 20% 16V	3161	4822 117 13613	2Ω 5% 0603	3304	4822 051 30272	2k7 5% 0.062W
2608	4822 124 23002	10μF 16V	3162	4822 051 30101	100Ω 5% 0.062W	3305	4822 051 30272	2k7 5% 0.062W
2609	4822 124 80151	47μF 16V	3163	4822 051 30273	27k 5% 0.062W	3309	4822 051 30103	10k 5% 0.062W
2610	4822 126 14305	100nF 10% 16V 0603	3164	4822 117 13613	2Ω 5% 0603	3310	4822 051 30223	22k 5% 0.062W
2611	4822 124 12095	100μF 20% 16V	3165	5322 117 13063	120Ω 1% 0.063W 0603	3311	4822 051 30223	22k 5% 0.062W
2614	4822 122 33777	47pF 5% 63V			RC22H	3312	4822 051 30472	4k7 5% 0.062W
2615	4822 122 33777	47pF 5% 63V	3166	4822 051 30393	39k 5% 0.062W	3313	4822 051 30472	4k7 5% 0.062W
2616	4822 122 33777	47pF 5% 63V	3167	4822 051 30101	100Ω 5% 0.062W	3316	4822 051 20108	1Ω 5% 0.1W
2617	4822 122 33777	47pF 5% 63V	3168	5322 117 13047	330Ω 1% 0.063W 0603	3317	4822 051 20108	1Ω 5% 0.1W
2618	4822 126 14305	100nF 10% 16V 0603			RC22H	3318	4822 051 30472	4k7 5% 0.062W
2620	4822 122 33777	47pF 5% 63V	3169	4822 051 30101	100Ω 5% 0.062W	3319	4822 051 30479	47Ω 5% 0.062W
2621	4822 122 33777	47pF 5% 63V	3170	4822 051 30101	100Ω 5% 0.062W	3320	4822 051 30472	4k7 5% 0.062W
2622	4822 122 33777	47pF 5% 63V	3171	4822 051 30101	100Ω 5% 0.062W	3321	4822 051 30682	6k8 5% 0.062W
2623	4822 122 33777	47pF 5% 63V	3172	4822 117 13632	100k 1% 0603 0.62W	3322	5322 117 13026	4k7 1% 0.063W 0603
2624	4822 122 33777	47pF 5% 63V	3173	4822 117 13632	100k 1% 0603 0.62W			RC22H
2625	4822 122 33777	47pF 5% 63V	3174	4822 117 11152	4Ω 7 5%	3323	5322 117 13026	4k7 1% 0.063W 0603
2626	4822 122 33777	47pF 5% 63V	3175	4822 117 13613	2Ω 5% 0603			RC22H
2627	4822 122 33777	47pF 5% 63V	3176	4822 051 30153	15k 5% 0.062W	3324	4822 117 13632	100k 1% 0603 0.62W
2632	4822 124 12095	100μF 20% 16V	3178	4822 117 11151	1Ω 5%	3325	4822 051 30682	6k8 5% 0.062W
2633	4822 124 12095	100μF 20% 16V	3179	4822 051 30221	220Ω 5% 0.062W	3326	4822 051 30479	47Ω 5% 0.062W
2634	4822 126 14305	100nF 10% 16V 0603	3180	4822 117 13632	100k 1% 0603 0.62W	3327	4822 051 30682	6k8 5% 0.062W
2635	4822 126 14305	100nF 10% 16V 0603	3181	4822 051 30561	560Ω 5% 0.062W	3328	4822 051 30223	22k 5% 0.062W
2636	4822 126 14305	100nF 10% 16V 0603	3182	5322 117 13018	1k0 1% 0.063W 0603	3329	4822 051 30223	22k 5% 0.062W
2637	4822 126 14305	100nF 10% 16V 0603			RC22H	3330	4822 051 30223	22k 5% 0.062W
2638	4822 126 14305	100nF 10% 16V 0603	3183	5322 117 13017	100Ω 1% 0.063W 0603	3331	4822 051 30332	3k3 5% 0.062W
2639	4822 126 14305	100nF 10% 16V 0603			RC22H	3332	4822 051 30332	3k3 5% 0.062W
2641	4822 122 33761	22pF 5% 50V	3184	2322 704 61204		3333	4822 051 30101	100Ω 5% 0.062W
			3185	4822 117 11151	1Ω 5%	3334	4822 051 30101	100Ω 5% 0.062W
			3187	4822 051 30273	27k 5% 0.062W	3335	4822 051 30101	100Ω 5% 0.062W
			3189	4822 051 30008	0Ω jumper	3336	4822 051 30101	100Ω 5% 0.062W
			3190	4822 051 30008	0Ω jumper	3337	4822 051 30101	100Ω 5% 0.062W
			3191	4822 051 30008	0Ω jumper	3338	4822 051 30101	100Ω 5% 0.062W
			3192	4822 051 30008	0Ω jumper	3339	4822 051 30008	0Ω jumper
			3193	4822 051 30008	0Ω jumper	3340	4822 051 30008	0Ω jumper
			3194	4822 051 30008	0Ω jumper	3403	4822 051 30103	10k 5% 0.062W
			3195	4822 051 30008	0Ω jumper	3404	4822 051 30103	10k 5% 0.062W
			3197	4822 051 30008	0Ω jumper	3405	4822 051 30103	10k 5% 0.062W
			3198	5322 117 13049	470Ω 1% 0.063W 0603	3412	4822 051 30008	0Ω jumper
					RC22H	3414	4822 051 30008	0Ω jumper
			3199	5322 117 13042	3k9 1% 0.063W 0603	3416	4822 051 30008	0Ω jumper
					RC22H	3500	4822 051 30332	3k3 5% 0.062W
			3200	4822 051 30103	10k 5% 0.062W	3501	4822 051 30332	3k3 5% 0.062W

3502	4822 051 30223	22k 5% 0.062W	3657	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R	7208	9322 139 67685	IC SM MC33464N-45A (MOTA) R
3503	4822 051 30103	10k 5% 0.062W	3658	4822 051 30102	1k 5% 0.062W	7304	4822 209 16877	BA6856FP
3504	4822 051 30103	10k 5% 0.062W	3659	4822 051 30102	1k 5% 0.062W	7310	4822 209 15899	CY7C199-15C
3505	4822 051 30103	10k 5% 0.062W	3660	4822 051 30102	1k 5% 0.062W	7311	9352 637 83557	IC SM SAA7335HL/E/M2 (PHSE) Y
3506	4822 051 30103	10k 5% 0.062W	3661	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R	7312	4822 130 60373	BC856B
3507	4822 051 30472	4k7 5% 0.062W	3662	4822 051 30102	1k 5% 0.062W	7315	4822 130 60511	BC847B
3508	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM	3663	4822 051 30102	1k 5% 0.062W	7404	9322 144 59668	IC SM MT48LC1M16A1TG-7S (MRN)R
3509	4822 051 30103	10k 5% 0.062W	3664	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R	7405	9322 144 59668	IC SM MT48LC1M16A1TG-7S (MRN)R
3511	4822 051 30332	3k3 5% 0.062W	3665	4822 117 12139	22Ω 5% 0.062W	7501	4822 130 60511	BC847B
3512	4822 051 30332	3k3 5% 0.062W	3667	4822 051 30331	330Ω 5% 0.062W	7503	9322 151 16671	STI5505AVC
3513	4822 051 30103	10k 5% 0.062W	3669	4822 051 30008	0Ω jumper	7504	4822 242 10838	27MHZ 120P FX0-31FT
3514	4822 051 30103	10k 5% 0.062W	3671	4822 051 30222	2k2 5% 0.062W	7505	9322 156 81668	M24C32-WMN6TNKSA
3515	4822 051 30103	10k 5% 0.062W	3672	4822 051 30479	47Ω 5% 0.062W	7600	5322 209 71568	PC74HCT14T
3516	4822 051 30103	10k 5% 0.062W	3673	4822 051 30101	100Ω 5% 0.062W	7604	4822 130 60511	BC847B
3517	4822 051 30332	3k3 5% 0.062W	3677	4822 051 30008	0Ω jumper	7605	4822 209 17398	LD1117DT33
3519	4822 051 30103	10k 5% 0.062W	3678	4822 051 30008	0Ω jumper	7607	4822 130 60511	BC847B
3520	4822 051 30103	10k 5% 0.062W	3679	4822 051 30008	0Ω jumper	7608	4822 130 60373	BC856B
3521	4822 051 30103	10k 5% 0.062W	3681	4822 051 30008	0Ω jumper	7609	4822 130 60373	BC856B
3522	4822 051 30103	10k 5% 0.062W	3683	4822 051 30008	0Ω jumper	7610	4822 130 60511	BC847B
3523	4822 051 30332	3k3 5% 0.062W	3685	4822 051 30008	0Ω jumper	7611	9352 456 80115	
3524	4822 051 30101	100Ω 5% 0.062W	3686	4822 051 30223	22k 5% 0.062W	7612	4822 130 60511	BC847B
3525	4822 051 30103	10k 5% 0.062W	3687	4822 051 30223	22k 5% 0.062W	7613	4822 130 60511	BC847B
3526	4822 051 30103	10k 5% 0.062W	3688	4822 051 30472	4k7 5% 0.062W	7614	4822 130 60511	BC847B
3534	4822 051 30103	10k 5% 0.062W	3689	4822 051 30223	22k 5% 0.062W	7614	4822 130 60511	BC847B
3535	4822 051 30153	15k 5% 0.062W	3692	4822 051 30103	10k 5% 0.062W	7615	4822 130 60511	BC847B
3536	4822 051 30101	100Ω 5% 0.062W	3693	4822 117 12925	47k 1% 0.063W 0603	7616	9322 151 71668	IC SM MK2703STR (MICL) R
3537	4822 051 30331	330Ω 5% 0.062W	3694	4822 117 13632	100k 1% 0.063 0.62W	7617	4822 130 60511	BC847B
3538	4822 051 30681	680Ω 5% 0.062W	3696	4822 051 30472	4k7 5% 0.062W	7618	4822 130 60511	BC847B
3541	4822 051 30479	47Ω 5% 0.062W	3697	4822 117 13632	100k 1% 0.063 0.62W	7620	4822 130 60373	BC856B
3542	4822 051 30479	47Ω 5% 0.062W	3698	4822 051 30103	10k 5% 0.062W	7621	4822 130 42804	BC817-25
3545	4822 051 30221	220Ω 5% 0.062W	3699	4822 051 30103	10k 5% 0.062W	7622	4822 130 60511	BC847B
3546	4822 051 30101	100Ω 5% 0.062W	3700	4822 051 30472	4k7 5% 0.062W			
3548	4822 051 30008	0Ω jumper						
3549	4822 051 30008	0Ω jumper						
3550	4822 051 30101	100Ω 5% 0.062W						
3551	4822 051 30101	100Ω 5% 0.062W						
3552	4822 051 30008	0Ω jumper						
3554	4822 051 30008	0Ω jumper						
3564	4822 051 30008	0Ω jumper						
3566	4822 051 30008	0Ω jumper						
3570	4822 051 30101	100Ω 5% 0.062W						
3571	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM						
3572	4822 051 30689	68Ω 5% 0.063W 0603 RC21 RST SM						
3574	4822 051 30008	0Ω jumper						
3605	4822 051 30008	0Ω jumper						
3606	4822 117 12925	47k 1% 0.063W 0603						
3607	4822 117 13632	100k 1% 0.063 0.62W						
3608	4822 117 13632	100k 1% 0.063 0.62W						
3609	4822 117 13632	100k 1% 0.063 0.62W						
3610	4822 051 30103	10k 5% 0.062W						
3611	4822 051 30103	10k 5% 0.062W						
3612	4822 051 30103	10k 5% 0.062W						
3613	4822 051 30103	10k 5% 0.062W						
3614	4822 051 30103	10k 5% 0.062W						
3615	4822 051 30103	10k 5% 0.062W						
3616	4822 051 30103	10k 5% 0.062W						
3618	4822 051 30223	22k 5% 0.062W						
3619	4822 051 30223	22k 5% 0.062W						
3620	4822 051 30101	100Ω 5% 0.062W						
3621	4822 051 30101	100Ω 5% 0.062W						
3622	4822 051 30101	100Ω 5% 0.062W						
3623	4822 051 30101	100Ω 5% 0.062W						
3624	4822 051 30101	100Ω 5% 0.062W						
3625	4822 051 30101	100Ω 5% 0.062W						
3626	4822 051 30102	1k 5% 0.062W						
3627	4822 051 30471	470Ω 5% 0.062W						
3628	4822 051 30471	470Ω 5% 0.062W						
3629	4822 051 30472	4k7 5% 0.062W						
3630	4822 051 30221	220Ω 5% 0.062W						
3631	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3632	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3633	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3635	4822 051 30682	6k8 5% 0.062W						
3636	4822 051 30682	6k8 5% 0.062W						
3637	4822 051 30332	3k3 5% 0.062W						
3642	4822 051 30103	10k 5% 0.062W						
3647	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3648	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3651	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3654	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3655	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
3656	2322 704 64301	RST SM 0603 RC22H 430Ω PM1 R						
6200	4822 130 11397	BAS316	6301	9322 128 69685	S1D	0387	3139 246 10691	IFU DVD612/02X
6301	9322 128 69685	S1D	6302	9322 128 69685	S1D	1002	3139 248 80861	PCBAS AV DVD612 EU
6302	9322 128 69685	S1D	6303	9322 128 69685	S1D	1003	3139 248 80941	PCBAS FR DVD612 EU
6303	9322 128 69685	S1D	6600	4822 130 11528	1PS76SB10	1005	3122 427 22572	PSU DVD VFM EURO
6600	4822 130 11528	1PS76SB10				1014	3104 157 11190	CWAS FLEX DVD 22 130 32S
7100	5322 130 42718	BFS20						
7101	5322 130 42718	BFS20						
7102	9352 637 37518	TZA1033HL						
7103	4822 209 17229	BA5938FM						
7104	4822 209 30095	LM833D						
7105	4822 209 32073	MC34072D						
7106	5322 130 42718	BFS20						
7109	4822 209 15083	AN78M09						
7110	5322 130 60803	BST72A						
7111	4822 130 60511	BC847B						
7112	4822 130 60511	BC847B						
7113	4822 130 60511	BC847B						
7114	4822 130 60511	BC847B						
7115	4822 130 60373	BC856B						
7116	4822 130 60511	BC847B						
7117	4822 209 90927	L78L05ACD						
7118	5322 130 60845	BC807-25						
7119	4822 130 42804	BC817-25						
7201	9351 869 80118							
7202	3104 123 85860	AM29F002T/4.3.13						
7203	4822 130 60373	BC856B						
7207	4822 209 17231	SAA7399HL						

DVD612/021

Various

0010	3139 247 52811	CAB FRONT DVD612/00X PPT
0025	3139 247 52941	BTN STANDBY DVD612/00X PPT
0030	3139 247 52851	WINDOW DVD612/00X PPT
0040	3139 247 52911	BTN CONTROL DVD612/00X PPT
0200	3139 247 52771	FRONT ASSY DVD612/00X
0224	3139 247 53011	BACK PLATE DVD612/00X PPT
0232	3139 247 52991	COVER TOP DVD612/00X PPT
0261	4822 321 11139	POWER CORD
0336	4822 321 61579	VIDEO-CABLE
0382	3111 170 21992	SCART CABLE (L=1.10M) BMS
0384	3139 228 87051	PROD.ASSY RC19133001/01 PACKED
0387	3139 246 10691	IFU DVD612/02X
1002	3139 248 80861	PCBAS AV DVD612 EU
1003	3139 248 80941	PCBAS FR DVD612 EU
1005	3122 427 22572	PSU DVD VFM EURO
1014	3104 157 11190	CWAS FLEX DVD 22 130 32S

DVD612/051

Various

0010	3139 247 52811	CAB FRONT DVD612/00X PPT
0025	3139 247 52941	BTN STANDBY DVD612/00X PPT
0030	3139 247 52851	WINDOW DVD612/00X PPT
0040	3139 247 52911	BTN CONTROL DVD612/00X PPT
0200	3139 247 52771	FRONT ASSY DVD612/00X
0224	3139 247 53011	BACK PLATE DVD612/00X PPT
0232	3139 247 52991	COVER TOP DVD612/00X PPT
0261▲	3139 128 75222	MAINS CORD (2.3M) UK BK (VHR)
0333	4822 321 11357	AUDIO CORD SET
0336	4822 321 61579	VIDEO-CABLE

0382	3111 170 21992	SCART CABLE (L=1.10M) BMS
0384	3139 228 87051	PROD.ASSY RC19133001/ 01 PACKED
0387	3139 246 10711	IFU DVD612/05X
1002	3139 248 80861	PCBAS AV DVD612 EU
1003	3139 248 80941	PCBAS FR DVD612 EU
1005	3122 427 22572	PSU DVD VFM EURO
1014	3104 157 11190	CWAS FLEX DVD 22 130 32S